PROPERTY OF
SEATTLE PUBLIC LIBRARY

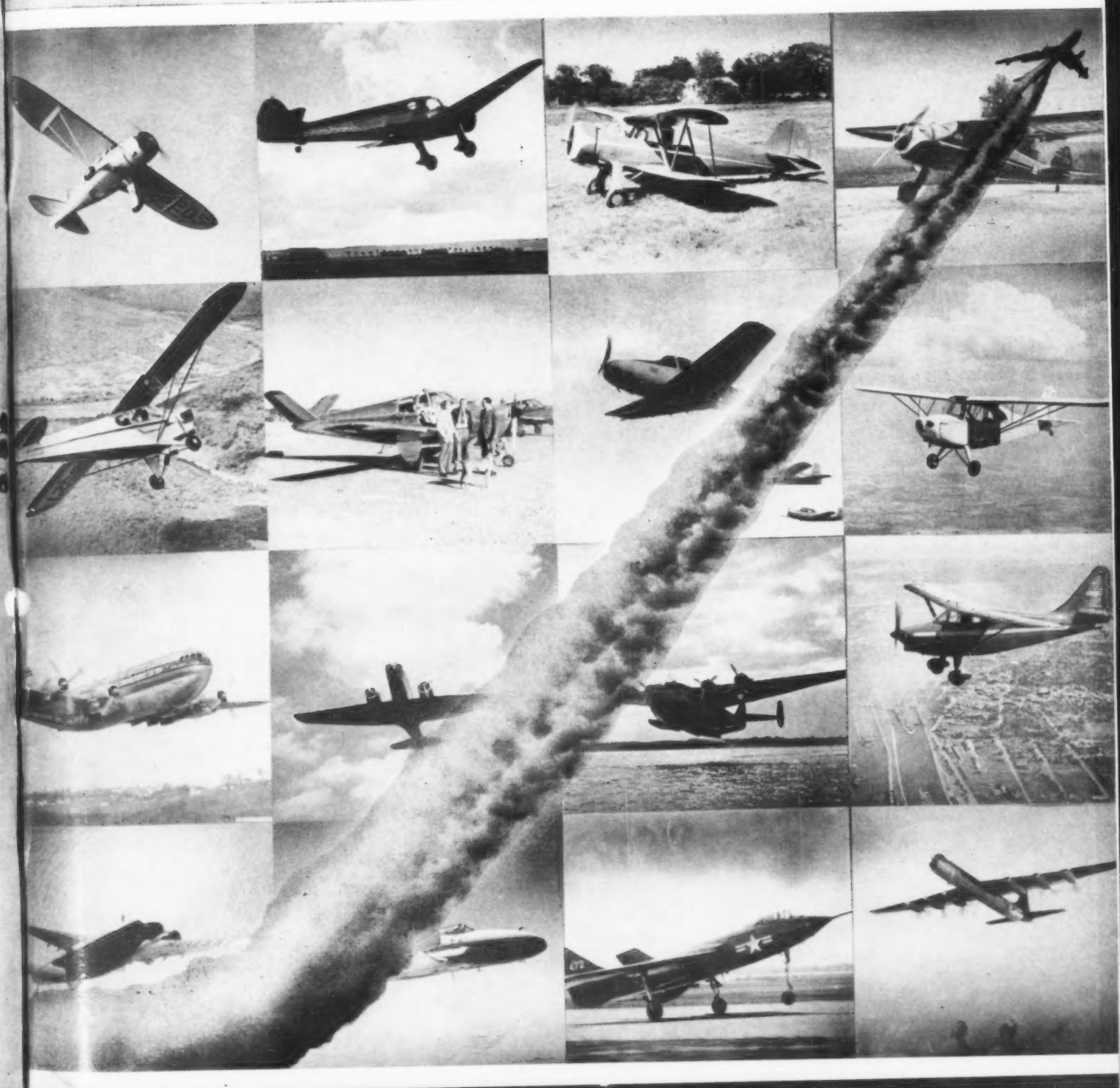
Technology
STACK

APRIL 1949

35 cents

Southern FLIGHT

Including MODERN AIRPORTS



1934 — Fifteen Years of Achievement — 1949

Born and Branded in Texas

There's a new brand in Texas—the "Flying V" of Chance Vought Aircraft. It is being applied this month to the first F4U-5 "Corsair" to be built entirely in Chance Vought's new Dallas Plant.

CHANCE VOUGHT AIRCRAFT

DALLAS, TEXAS

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

PROPERTY OF
SEATTLE PUBLIC LIBRARY

OKLAHOMA CITY'S DOWNTOWN AIRPARK

points the way

to future airport developments. Its convenient location (5 minutes from downtown Oklahoma City), its efficient, courteous Mobilgas service extended to visiting fliers, its excellent restaurant facilities and courtesy car service, make it a *must* on flight plans to this area.

Recent winner of the Haire award, this very up-to-date airport is capably managed by personable Harry Reed, ex-Marine flier, shown at left in the photo as he extends greetings to visiting flier.

Mobilgas AIRCRAFT
FORWARD WITH Aviation
Mobiloil AERO
MAGNOLIA PETROLEUM COMPANY

F-80 Lockheed Shooting Star

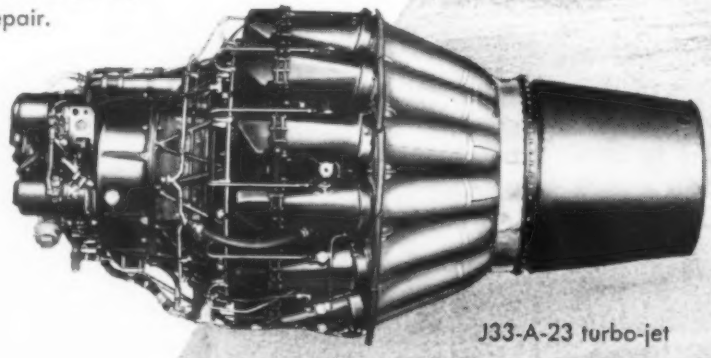
PROVED PERFORMANCE

With a total of more than 100,000 hours of actual flight time in their log book, Allison aircraft turbine engines have proved themselves with dependable performance under many varying conditions of service and of weather. Now operating 300 hours before overhaul, Allison J33 jet engines offer more useful service in the air with less lost time on the ground for service and repair.

Air Power is Peace Power

★ ★ ★

Other Allison-powered airplanes:
Republic F-84 Thunderjet
North American FJ-1 Fury
Northrop YB-49 Flying Wing
Grumman F9F-3 Panther



J33-A-23 turbo-jet

Allison

Builder of axial and centrifugal flow turbine engines

DIVISION OF GM GENERAL MOTORS

Indianapolis, Indiana

Want an Extra Week this Month?

YOU CAN INCREASE PRODUCTIVE TIME!

Cessna
190 and 195

Now you can cover your entire territory thoroughly ... do four weeks work in three ... with far less rush and fatigue! And use that extra week for extra business .... or for pleasure! The new 4-5 place Cessna 190 and 195 make this possible. They are completely practical personal and company airliners!

AIRLINE-TYPE ENGINES:
A 300 H.P. Jacobs in the 195. A
240 H.P. Continental in the 190.
All-metal construction throughout.
Luxurious Interiors: Room for 4 with lots of luggage... 5 if you're traveling light!
Cruising Speeds—Over 165 m.p.h.
Range—over 700 miles.
Hamilton Standard
Constant Speed Propellers.

THEY'RE MONEY MAKERS MONEY SAVERS - modern tools you can't afford not to use. For these fast, luxurious executive planes enable fewer high-salaried, hard-to-find "key men" to get more done -- trouble shoot, back up salesmen, beat competition "to the punch" anywhere in the country. Just the right size for the average executive group - they cruise comfortable at over 165 m.p.h. - have every comfort and safety feature Yet maintenance and operating costs are surprisingly low! See them - see your Cessna dealer.

CESSNA 120-140

Roomy, cross-country, 2-place planes... at light, training plane prices. Cruise at over 100 and 105 m.p.h.

CESSNA 170

The famous low-cost, 4-place "Family Car of the Air." Now all-metal. Cruising speed —over 120 m.p.h.

CESSNA LEADS* because Cessna offers "More for the Money!"

*In 1948, Cessna sold more personal planes than any other company.

USE THIS COUPON
or See Your Nearest Cessna Dealer

Cessna Aircraft Co., Dept. SF-3, Wichita, Kansas.

Please send free literature giving complete description of the Cessna 195 ( ); Cessna 120, 140 ( ); Cessna 170 ( ); Literature for model builders ( ).

Name.....

Street No.....

City.....County.....

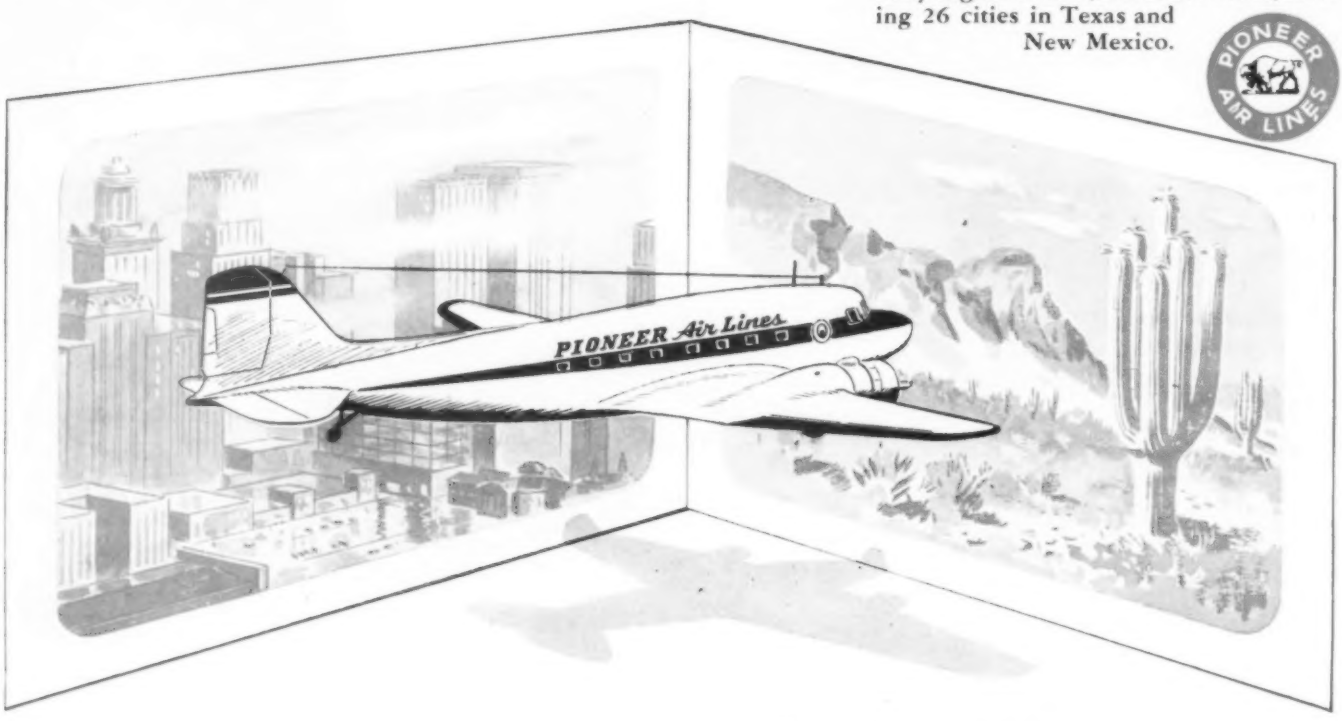
State.....Phone No.....

PIONEER AIR LINES

reports on their amazing success with Glidair No. 342 Dural Coating.

"Flying the Range"

is Pioneer's slogan, since they operate daily flights over 2,200 route miles, serving 26 cities in Texas and New Mexico.



from low and humid...to high and dry

No. 342 DURAL COATING PROTECTS

ELIMINATES FREQUENT POLISHING! CUTS MAINTENANCE COSTS!

"Our Flight 61 often leaves sea-level Houston—temperature: 75°, humidity: high—and lands at 7,000-feet-high Albuquerque in zero weather and very dry air. Despite these quick-change conditions, *the polished surfaces of our DC-3s are protected from atmospheric corrosion for 6 to 12 months... thanks to Glidair No. 342 Dural Coating!*"

That's how Mr. Harold B. Seifert, Vice President of Operations, Pioneer Air Lines, Inc., describes the all-weather performance of new Glidair Dural Coating.

Enjoy the advantages of fewer polishings, lower maintenance costs by applying this clear, resinous coating to your planes. It's easily sprayed on polished dural, providing a light, smooth, protective film that dries dust-free in 5 minutes. One gallon coats 650 square feet. Does not peel or yellow. Want more details? Write to

THE GLIDDEN COMPANY • Aviation Sales Headquarters • 11001 Madison Ave., Cleveland 2, Ohio

DISTRIBUTED BY

SNYDER AIRCRAFT CORP.
Municipal Airport, Chicago 38, Illinois
Sullivant Ave. Airport, Columbus 4, Ohio
1525 Broadway, Denver 2, Colorado
Municipal Airport, Omaha, Neb.

SUPPLY DIVISION, INC.
Robertson, Missouri
108 Grand Ave., Oklahoma City, Okla.
229 E. Madison Ave., Memphis, Tenn.
Municipal Airport, Houston 17, Texas

AIR-PARTS, INC.
Hayward Airport, Hayward, Calif.

SOUTHWEST AIRMOTIVE CO.
Love Field, Dallas, Texas

SKY SUPPLY, INC.
Beacon Field, Alexandria, Va.
Woodrum Field, Roanoke, Va.

PIEDMONT AVIATION, INC.
Winston-Salem, N. C.

A. W. WHITAKER
5001 N. E. Union Ave., Portland, Ore.

SERVAIR, INC.
City Airport, Detroit, Mich.

ATLANTIC AVIATION SERVICE
New Castle County Airport, Wilmington 99, Del.

E. W. WIGGINS AIRWAYS, INC.
Metropolitan Airport, Norwood, Mass.

FLIGHT, INC.
Municipal Airport, Cleveland, Ohio

BUFFALO AERONAUTICAL CORP.
Buffalo Airport, Buffalo, N. Y.

BERNER-PEASE
3221 N. E. 2nd Ave., Miami, Florida

LODWICK AIRCRAFT INDUSTRIES, INC.
Lakeland, Florida

GLIDAIR Aircraft Finishes for every purpose

APRIL, 1949 VOL. XXXI, No. 4

Southern FLIGHT

Including MODERN AIRPORTS

COVER: A selection of a few of the scores of airplane models which have contributed to aeronautical development during the last fifteen years. Special articles, authoritative tables, charts and photos in this issue detail the progress covered since our first magazine appeared in April, 1934.

Air Report—SIGNIFICANT TRENDS AND NEWS - - - - - - - - 5

Just Among Ourselves—EDITORIALS - - - - - - - - - - - 8

15 Years—A Sound Basis for Future Operations—
BY GEORGE E. HADDAWAY - - - - - - - - - - - - - 14

Time to Mature—BY W. T. PIPER - - - - - - - - - - - 18

Less Regulation for More Development—BY D. W. RENTZEL - 20

Our Changing Pattern of Progress—BY LELAND D. WEBB - - 22

An Era Passes—BY HENRY CLARK - - - - - - - - - - - 23

A Fair Deal for Veterans - - - - - - - - - - - - - - 28

Progress in Air Transportation - - - - - - - - - - - 39

Airmen's Calendar - - - - - - - - - - - - - - - - - 47

This Month's Modern Airport—
ALLEN PORT, MONTGOMERY, ALABAMA - - - - - - - 49

Airports for Aviation Progress—BY S. E. TRAVIS, JR. - - - - 50

Questions and Answers for Airport Operators - - - - - 53

Published Monthly by

AIR REVIEW PUBLISHING CORPORATION

P. O. Box 750, 1901 McKinney Avenue, Dallas 1, Texas

GEORGE E. HADDAWAY
Editor and Publisher

TOM ASHLEY, managing editor. FRED N. STONES, JR., business manager.
E. H. PICKERING, editorial research. Field Representative: BOB WEMPLE.

AIR Report

Significant Trends and News

On to Monterrey

April 30 is deadline for participants to make reservations for Texas Private Fliers Association's $35 all-expense air tour to Monterrey, Mexico, May 13-16. Fee covers Colonial Hotel reservation and all meals. Events include cocktail parties, visits to Horsetail Falls, Carta Blanca brewery, Garcia Caves, Santa Catarina canyon and parties at Regio and Casino clubs. All planes will arrive at Monterrey's American Airlines airport by early afternoon of May 13, clearing customs through Laredo or Brownsville by noon that day. Navigation to Monterrey is easy and a large number of planes is expected.

Two New Aeroncas

An improved version of Aeronca's 145-hp. 4-place Sedan and a new 90-hp. 2-place Champion have been announced by John A. Lawler, president. Cabin comfort improvements highlight the Sedan, which also features a painted metal wing. Changes include heavier doors, improved upholstery and seat cushions, improved empennage hinge bushings, tail gear internal assembly, trim tab operation, heavy-duty main gear struts, heavier engine cowling with new type fastener and a new type stirrup step for entry. The 90-hp. Champion has been aimed at the fast-growing aerial spray industry and is especially adaptable to easy installation of Sevdy-Sorenson spray units. Two factory-equipped sprayers, the 85-hp. and 90-hp. Champions, are offered, the 85 at $3,160 and the 90 at $3,210. Both are equipped with Safe Flight stall warning indicators and remain NC airplanes whether flown with or without removable spray units.

Three New Monocoupes

Monocoupe Aircraft & Engine Corp., Melbourne, Florida, has announced three 1949 2-place Monocoupes—115-hp. Lycoming Standard and Deluxe and 185-hp. Warner Super Scarab Clipped Wing. No price was listed on the Clipped Wing but the Standard is listed at $3,890 and the Deluxe at $4,490, with cruising speed advertised at 135 mph. Clipped Wing performance is said to be 175 mph. cruising. Empty weight is 1,040 lbs., gross weight 1,640 lbs.

Lycoming Mooney Approved

Al Mooney reports deliveries already under way after his M-18L single-seater, with 65-hp. Lycoming, was approved last month. Introductory price is $1,995. Mooney data on the little tricycle low-wing include following: Empty weight, 500 lbs.; gross weight, 780 lbs.; optimum cruising speed on two-thirds of power, 125 mph.; sea level economy cruise on one-half power, 115 mph.; fuel capacity, 11 gals.; range at optimum

(Continued on page 42)

SOUTHERN FLIGHT, April, 1949. Vol. 31, No. 4. Published monthly. Publication office, P. O. Box 750 (1901 McKinney Ave.), Dallas 1, Texas. Price 35c single copy. Subscription rates: United States, one year $3.00; two years, $4.00; three years, $5.00. Established February, 1934. Entered as second-class matter at the Post Office, Dallas, under the act of March 3, 1879. Copyright, 1949, by Air Review Publishing Corporation.

This fleet of Bonanzas makes a business go

...and grow!

Key men of Weatherford Oil Tool Company, Texas, really get around with their *seven*-plane fleet of 4-place Bonanzas. Weatherford makes oil well tools and equipment, has 38 distribution centers in ten states. The sales situation, as in many another business, calls for fast action. They get it—by Bonanza!

"Now we can increase our sales calls by 40% over those we could make by fastest public transportation," says President J. E. Hall, Jr. "If we hear of a potential sale in another state, we have a man there in hours. And customers like fast action when waiting for equipment. Oil rig time is expensive. Now our men, with equipment, get there pronto by Bonanza."

Sales Manager John Hall even uses his Bonanza as "reconnaissance"; spots well locations from the air, follows up with sales calls. Because Bonanzas are *quiet* and comfortable, they're ideal as customer transports. Cost of operation? About the same gas and oil consumption per mile as an auto! This Bonanza fleet is a profitable, *paying* proposition.

Travel on business? Investigate Bonanza Travel

Apply this revolutionary business "machine" to *your* business. It means you slice travel-time by two-thirds . . . a saving you put to *profitable* use. Investigate. A note on your company letterhead brings an informative 60-page brochure on "The Air Fleet of American Business." Write today to Beech Aircraft Corporation, Wichita, Kansas, U. S. A.

Top speed 184 mph
Cruising speed, 170 mph
Range 750 miles

BEECHCRAFT
BONANZA
MODEL A35

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

1934 1949

THE FIFTEEN IMPORTANT YEARS . . .

In all the half-century of aviation history no period has been more significant than the past fifteen years.

The war offered a challenge and an opportunity. Under the lash of emergency, decades of aviation development were telescoped into a few years. And out of this accelerated research has come advanced designing to give peacetime flying new power, speed and safety.

Aviation has come of age. Thanks to leaders of the industry it has overcome each successive difficulty and assumed the important place it deserves in our economy.

Step by step the makers of Humble-Esso Aviation Products have kept pace with aviation's development. Each advancement in aircraft and engine design has found a corresponding advancement in the quality of Humble-Esso products. Increasing interest in commercial and private flying has seen Humble-Esso outlets in Texas increase from a bare dozen in 1934 to nearly a hundred today. And as aviation progress continues, Humble-Esso research will continue to provide finer products for the finer planes of tomorrow.

HUMBLE OIL & REFINING CO.

ESSO

HUMBLE-ESSO AVIATION PRODUCTS

Just among ourselves

EDITORIALS

REMEMBER?

THIS issue of SOUTHERN FLIGHT commemorates the completion of fifteen years of service to the aviation industry. Your editors present a modest review of aviation progress for this span of years dating from 1934 to the present hour—surely the most dynamic era in aviation since Kitty Hawk.

A lot of air, hot and otherwise, has passed over the old airfoil since the SOUTHERN FLIGHT ship was launched way back yonder in the Spring of the year that the Roosevelt-Farley-Black team cancelled out the air mail contracts. Major General Benny Foulois was chief of the Air Corps. Lockheed announced beginning of flight tests on the "Electra," Douglas was perfecting the DC-2 and Monocoupe came out with its 145-hp. Warner-powered Model "D" which cruised at 140, carried 34.5 gallons of gas and gave 17 miles to the gallon. Wes Raymond came breezing through the Southwest demonstrating a Kinner "Sportster" with demountable top while Jack Harding of Boeing spent three weeks at Barksdale Field conducting service liaison work in connection with the new P-26A.

Eugene Vidal was the New Deal's Director of Aeronautics in the Department of Commerce and Benny Howard, a United Airlines pilot, established a new airline speed record between Dallas and Chicago with one stop at Kansas City; total flying time: 4 hours, 48 minutes.

Wiley Post was supervising installation of special instruments in the "Winnie Mae" at the Braniff hangar in Oklahoma City preparing for experimental flights in the sub-stratosphere and Hugh Perry of Waco was boasting of two military Model F-2's being delivered to the Navy for attachment to the dirigible "Macon." Capt. Al Williams of the American Petroleum Institute, along with Edward P. Warner, Amelia Earhart, J. Carroll Cone, Dr. George W. Lewis, Luther Harris, Richard C. Gazley and John H. Geisse were among those appointed on various committees to study details of a proposed low-cost, volume-production airplane for private flying to be underwritten by a $500,000 grant from the Public Works Administration.

A class of only seventy aviation cadets graduated from Kelly Field early in that Spring of 1934. Nearby Randolph Field, just a couple of years old, was being referred to as the "Academy of the Air."

Geared Wasp engines and three-bladed Hamilton Standard controllable pitch propellers were being installed on a new version of the Boeing 247. Dick Dobie was being loaned to Deutsche Luft Hansa of Germany to instruct German pilots how to fly the 247 and Vern Dorrell was appointed chief pilot and operations manager of Pan American Airways' Mexican Division, known as Aerovias Centrales. Bowen Airlines, operating the fastest airline schedules in the world between southwestern cities using single-engine Lockheed "Vegas" couldn't get a mail contract and advertised: "Fly Past the Air Mail." Reagan Stunkel and George Carroll kept the Bowen Vegas going.

Statistics for 1933 were just being released in April of 1934 and revealed that non-scheduled flight operations flew 45,912 miles per accident and 377,200 miles per fatal accident. Number of miles flown per passenger fatality was 499,667 and the number per pilot fatality was 477,376— an "enviable record" according to the write-up.

Some 568,940 airline tickets were sold in 1933. Miles flown by the scheduled operators totalled 54,642,540. C. R. Smith reported that his southern division of American Airways had abandoned the old five-passenger ships and boasted thirty-five modern planes in operation, including Curtiss - Wright Condors, tri-motor Fords, eight-passenger Stinsons and Pilgrims. He had 412 employes, "necessitating an annual payroll of over $1,000,000." Louise Thaden was looking for a financial backer in order to enter the London to Melbourne race. Jack Story settled in Oklahoma City for the Stinson factory and flew in a new "Reliant." Bob LeSage, a Graham, Texas, auto dealer, bought one. John Livingston went to the Waco factory as engineering test pilot. "Booger Red" Vencill was handing in his ticket every Monday morning to Buck Rowe of the Aeronautics Branch at Dallas—and pleading for it back every Saturday for week-end hamburger money.

As of April 1, 1934, there were 13,489 Americans licensed by the Department of Commerce to pilot aircraft, and 8,856 licensed and unlicensed aircraft to be piloted.

President Roosevelt urged Congress to hasten temporary legislation in order that the air mail might be returned to the commercial operators, and that he be empowered to appoint a commission for the study of aviation in order that recommendations for legislation might be made to the next Congress. "It must be borne in mind that the U. S. has no broad aviation policy," he said.

And so it went back in 1934.

And so it goes in 1949. We've seen a lot of progress, we've fought another world war, we've seen inordinate expansion replaced by hard contraction, the New Deal has been replaced by the Fair Deal, official commissions and special committees have been formed, made their studies and recommendations and have passed on into the limbo of by-gone commissions, as have a host of short-term experts, short-sighted opportunists and "revolutionary" aircraft and equipment. But somehow, the old hard core of the aviation business seems to survive and succeed in spite of the mongrels who've muddied up a lot of water, in spite of too much government interference and all of the barriers and impediments thrown into the path of progress by ground-bound thinking in high places. Little by little, aviation in America is becoming a business—a true industry—instead of a "commercial slump between wars." You simply can not survey the history of aviation without being impressed

(Continued on page 56)

FLAT RATE SERVICE for BONANZAS

E-185 ENGINE OVERHAUL...

$275 *(Labor)*

Work fully guaranteed in SAC's Continental-approved Shop

$995 *(Complete)*

A savings . . $101.67 below previous accepted standard. Newly-overhauled engine includes overhauled magnetos, carburetor, and ignition harness.

E-185 ENGINE EXCHANGE...

Get full dollar value for every maintenance dollar spent . . . bring your Bonanza to Southwest Airmotive for Beech-Approved service and repairs.

100 HOUR INSPECTION...

$70 *(Labor)*

Conducted in strict accord with Beech and CAA specifications.

KIDDE FIRE EXTINGUISHER INSTALLATION

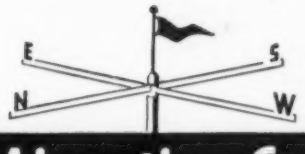
A quick, sure safeguard against fire in the engine compartment. *(Labor)* **$90**

FLOTTORP PLASTIC COVERED PROP INSTALLATION

Includes Magnafluxing hub assembly, repacking, reassembling, and rebalancing. *(Labor)* **$46.65**

Check your FLAT RATES CATALOG for "Extra" services at Southwest Airmotive . . . take advantage of the 150 flat rates for Bonanzas. Write for the FLAT RATES CATALOG if you do not have one!

"THE FLAT RATE COMPANY"

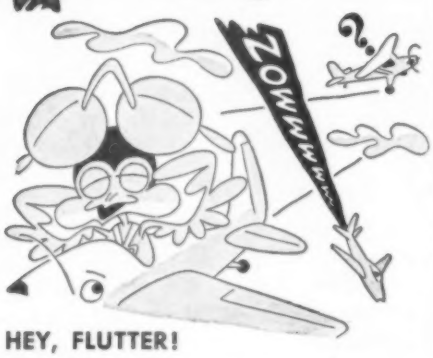


Southwest Airmotive Co.

CAA Approved Repair Station No. 195 | **LOVE FIELD, DALLAS**

The Birdmen's Perch

By *Major Al Williams*, ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.



HEY, FLUTTER!

Mail a commission as Senior Pilot to Paul M. Wertheimer (CFI #20371), Ada, Ohio! Now, mail another one—Perch Pilot (bottom rung), this time—to Dottie Anderson, in Bluffton, Ohio.

He's the guy in the putt-putt who was nearly nudged by the record-trying F-86 during the Air Races, last fall. She's the gal who told him that the Perch was trying to get in touch with him to hear his account of "Ships That Pass In The Flight."

Wertheimer, who was following radio instructions when the near-miss occurred, made one correction in the jet-jockey's story. He says they didn't pass as dangerously close as 10 feet. No sir, Wertheimer says it was a comfortable 11 or 12 feet.

Actually, there wasn't much excitement. Wertheimer, who was carrying a passenger to Cleveland, was climbing (in response to radio directions) to get from 1200′ to 2000′ above surface level. The F-86 came from behind in a dive, passing under the bright red putt-putt. And because of their different attitudes, the light plane didn't get a single bump, much less the tornado we had pictured.

Well, anyhow, Senior Perch Pilot Wertheimer . . . you had a nice, close-up look at a record try. Even if it was awfully brief! Welcome to the Perch, and how about a few Little Known Facts About Well Known Planes, to run that commission up to a Command rating?

Same for you, Miss Anderson.

SOFT JOBS COMING

It's going to be pretty simple from now on!

Of course, you've read about the new instrument that flies courses, makes approaches, all but puts you on!—when you keep two indicators zeroed.

Well, with this lovely gimmick to handle the headwork . . . and with Gulfpride Aviation—Series D—to handle the lubrication of your engine, it's going to be pretty simple.

Gulfpride Aviation—Series D—is the great new Alchlor-processed oil for horizontally opposed engines, you know. It contains detergents which keep foreign matter from sticking to inner engine surfaces . . . keep it in suspension, in fact, until you drain the oil *and* the impurities. This great oil has oxidation inhibitors and anti-foam agents, too, for the further protection of your lightplane engine.

As we were saying, with the zero gimmick flying your plane, and with Gulfpride Aviation—Series D—looking after your engine, *there just isn't going to be much left for you to do, pilots!*

Except to say, "Gulfpride Aviation—Series D, please!"

APRIL SHOWERS . . .

. . . help to keep the dust down on dirt ports.

But it's not always raining, and besides, showers make mud.

So why don't you see that the field gets a treatment with Gulf Sani-Soil Set? The stuff's terrific, you know, for keeping dust right smack on the ground where it belongs. And it works so effectively that even a full-power engine run-up won't leave the people across the road choking in a cloud of dust. Nor will it obscure the runway and delay take-off or landing of another pilot.

Gulf Sani-Soil Set is non-staining, and doesn't smell to high heaven, either.

Better look into it, right now!

Gulf Oil Corporation and Gulf Refining Company . . . makers of

GULF **GULF AVIATION PRODUCTS**

HEY! EASY ON THOSE FUEL-HOSE CLAMPS! OVERTIGHTENING THEM···
···DOES NOT GIVE A BETTER SEAL! IT JUST DEFORMS THE HOSE!
WHY, IT MIGHT EVEN RUPTURE THE FUEL HOSE AND WASTE SOME OF···
···THAT WONDERFUL GULF AVIATION GASOLINE!
GULF

All-metal 90-hp. Silvaire Sprayer has two Roto-Spray units, wing tanks, flaps.

Ready to Earn Money for You

The New *Silvaire* SPRAYER

by LUSCOMBE

FIRST production airplane ever factory-designed and engineered for the specific purpose of aerial spraying, the 1949 SILVAIRE SPRAYER is rolling off Luscombe assembly lines.

Built-in wing tanks contain over 50 gals. of spray material, no change in trim characteristics. High-lift flaps allow spraying speeds of 50-90 mph., control swath width, have "helicopter effect" on fluid dispersion, providing undercoating.

Newly improved ICD Roto-Spray units, time tested and proved over 15 years, control particle size from aerosol to rain (10 to 1,500 microns), are non-clogging, easy to maintain, have positive shut-off and factory-calibrated scale for accurate dosage.

Spray equipment easily removable in minutes, the SILVAIRE SPRAYER becomes a fully certificated 2-seater with full dual controls, or the rear cockpit may be used for cargo.

See the versatile SILVAIRE SPRAYER at the First National Agricultural Aviation Conference, Kansas City, April 21-22. Write or wire today for complete information. Priority deliveries are in effect. LUSCOMBE AIRPLANE CORPORATION, P. O. Box 728, Garland, Texas.

Closeups show removable spray units, large filler caps for fluid tanks.

$3,595 COMPLETELY EQUIPPED

Six other 1949 Silvaires for your personal airplane

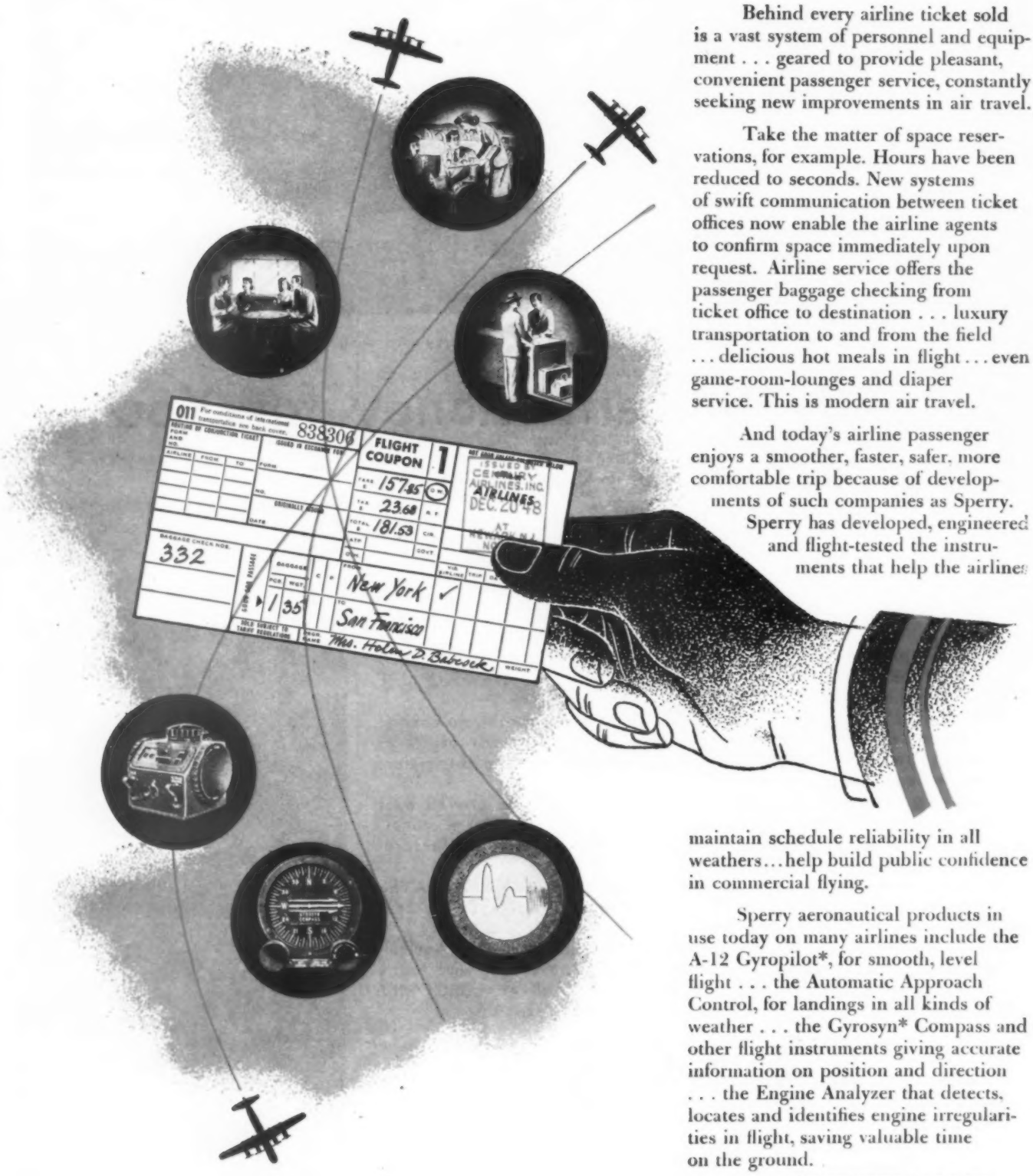
★ SKY PAL (2-pl., 65-hp.)	$2,095
★ SILVAIRE 8F SPECIAL (2-pl., 90-hp)	2,695
★ OBSERVER T8F SPECIAL (2-pl., Tandem, 90-hp.)	2,795
★ OBSERVER T8F DELUXE (2-pl., Tandem, 90-hp.)	3,195
★ SILVAIRE 8F DELUXE (2-pl., 90-hp.)	3,395
★ SILVAIRE 11A SEDAN (4-pl., 165-hp.)	7,470

LUSCOMBE AIRPLANE CORP.

BOX 728 GARLAND, TEXAS

An Airline ticket...

SYMBOL OF SERVICE



Behind every airline ticket sold is a vast system of personnel and equipment . . . geared to provide pleasant, convenient passenger service, constantly seeking new improvements in air travel.

Take the matter of space reservations, for example. Hours have been reduced to seconds. New systems of swift communication between ticket offices now enable the airline agents to confirm space immediately upon request. Airline service offers the passenger baggage checking from ticket office to destination . . . luxury transportation to and from the field . . . delicious hot meals in flight . . . even game-room-lounges and diaper service. This is modern air travel.

And today's airline passenger enjoys a smoother, faster, safer, more comfortable trip because of developments of such companies as Sperry. Sperry has developed, engineered and flight-tested the instruments that help the airlines maintain schedule reliability in all weathers...help build public confidence in commercial flying.

Sperry aeronautical products in use today on many airlines include the A-12 Gyropilot*, for smooth, level flight . . . the Automatic Approach Control, for landings in all kinds of weather . . . the Gyrosyn* Compass and other flight instruments giving accurate information on position and direction . . . the Engine Analyzer that detects, locates and identifies engine irregularities in flight, saving valuable time on the ground.

*TRADEMARK REG. U.S. PAT. OFF.

SPERRY GYROSCOPE COMPANY

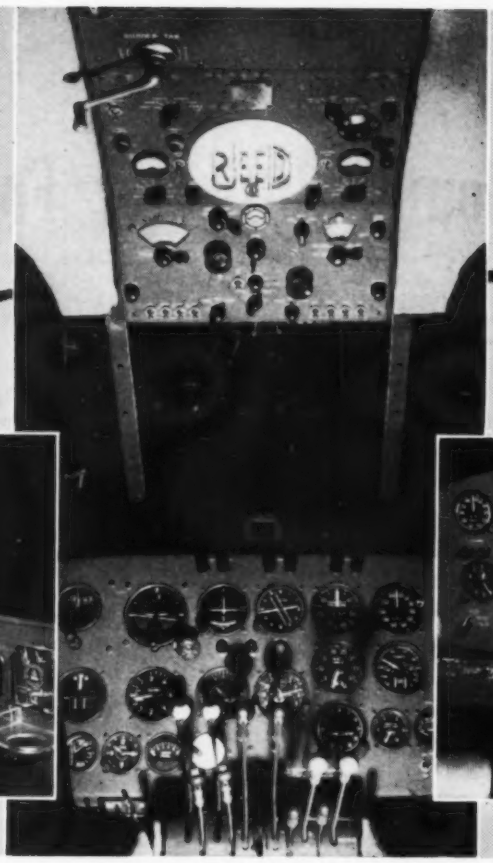
DIVISION OF THE SPERRY CORPORATION • GREAT NECK, N.Y.

NEW YORK · CLEVELAND · NEW ORLEANS · LOS ANGELES · SAN FRANCISCO · SEATTLE

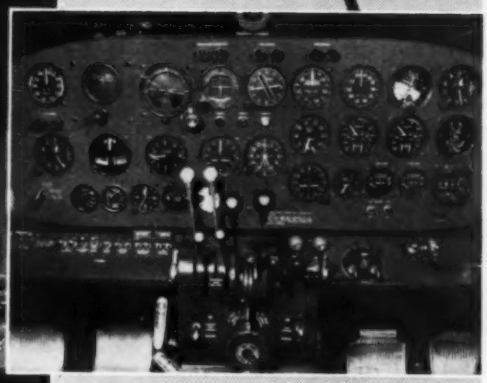
UNITIZED RADIO CONTROL...

FOR BETTER FLYING...

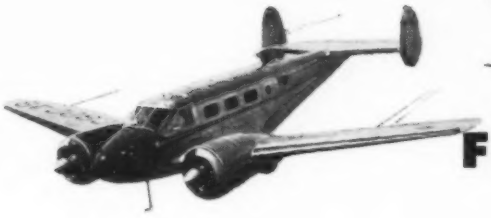
Ship-to-ground telephone and cabin radio installation.



Reed Custom-built, Unitized Radio and Instrument panels installed in a Twin-Engine Beech Executive Transport.



Reed Custom-built, All Airline Instrument Panel.



For More Convenience

J. D. Reed now announces a new, greatly improved, Custom-built, Unitized Radio Panel with Custom-built, All-Airline Instrument Panel and special cabin radio features to bring added safety and pleasure to all-weather, personal air travel.

Outstanding operational features include:

. . . VHF radio communications and navigation in addition to standard aircraft facilities . . .
. . . Cockpit loud speaker system to lessen pilot fatigue . . .
. . . Ship-to-ground telephone for direct communication with those on the ground . . .
. . . Cabin radio with clear reception and fine tonal qualities for passenger entertainment . . .
. . . And latest scientific instrument landing controls.

All units are adaptable to your present plane or any you expect to buy in the future. Radio and Instrument panels come in matching colors to compliment cockpit appointments.
Call our nearest office for full information on this finest of all aircraft radio installations.

J.D. REED CO. Inc.
SALES SERVICE
Beechcraft
DISTRIBUTOR
HOUSTON Municipal Airport
DALLAS Love Field
NEW ORLEANS New Orleans Airport

15 YEARS

A Sound Basis for Future Operations

By GEORGE E. HADDAWAY

MOST everyone is aware of the fact that the personal plane people built and sold more than 30,000 airplanes in 1946, another 15,000 during 1947 and 7,000 in 1948. At the time of Pearl Harbor total civilian aircraft registrations were around 25,000. With about 100,000 now registered you can figure some 20,000 must have come from Uncle Sam's surplus stockpile. Even so, more than half of the airplanes now registered are postwar craft and these exclude the surplus junkies that rarely take wing and serve only to mar the landscape around our nation's airports.

Agreed that bulk figures of aircraft registrations can be misleading if you don't take into account what kind of airplanes they are, who owns them and the kind and amount of usage they're getting. But the fact remains that there are more good *active* airplanes in use today than ever before in the history of aviation. While a lot of people here and there are still crying havoc and disaster in the small airplane business you just have to consider them either as congenital crepe-hangars or damned poor observers who can't see the forest for the trees. Far too many people have been comparing today's volume of business with what they thought or hoped it would be rather than comparing it with what it used to be. The fallacy of their approach is obvious.

We should be neither pessimistic nor optimistic about the lightplane business. Today we need more realistic people, who recognize certain fundamental truths about this self-sustaining branch of the aviation family which has seen more lean days than fat ones, more busts than booms and perhaps more hapless promoters with nothing to promote than any other phase of human endeavor. When you think back ten, fifteen or twenty years ago and recollect just what we had in those days you can't help but be impressed by the progress made in spite of and not because of government, financial wizards and ourselves.

Let's put down a few of the most important things we must recognize in order to get down on a practical and realistic base for future operations:

1. This is an engineering industry—not a "mass production" industry. Engineering progress comes high.

2. All the government regulation in the world will not create a better product, a richer market or improved safety figures.

3. Not everybody is a prospect for airplane ownership but nearly everybody is a prospect for air transportation or specialized uses of modern aircraft.

4. A corollary to Item 3—the size of the potential market for lightplanes and specialized services is practically unlimited and it is quite clear the industry's merchandising methods thus far employed have failed to tap even the top cream of the potential.

5. Highly organized publicity and sales promotion efforts of large airplane builders and operators as well as those devoted to seemingly more dramatic military aircraft developments have tended to crowd off the front page the work-a-day utility and growing importance of lightplanes in our national economy. Comparatively unorganized, smaller and highly individualistic elements in the lightplane field, without benefit of government cardboard, have not been able to match these efforts.

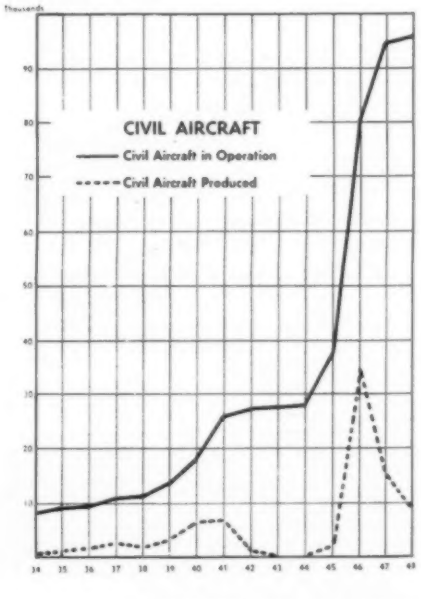
6. Fear is as great a deterrent to private flying growth as either high costs or lack of utility. Such factors as inept and incomplete handling of plane accidents by newspapers and the reluctance of industry people to help push air-age education programs will continue to retard public acceptance for years to come.

You can go on enumerating basic

Civil Aircraft in Operation 1934-1948

Year	Aircraft
1934	8,322
1935	9,072
1936	9,229
1937	10,836
1938	11,159
1939	13,772
1940	17,928
1941	26,013
1942	27,170
1943	27,180
1944	27,919
1945	37,789
1946	81,002*
1947	94,821*
1948	95,997*

*Gliders are included.



Hours Flown in Civil Flying by Types (NON-CARRIER)

Year	Total Hours (Thousands)	Per Cent Instructional	Per Cent Commercial*	Per Cent Business	Per Cent Pleasure
1934	846	26	24	14	36
1935	954	31	24	14	31
1936	1,059	36	23	12	29
1937	1,173	37	19	13	31
1938	1,478	39	17	13	31
1939	1,922	39	17	13	31
1940	3,200	48	12	10	30
1941	4,460	63	11	6	20
1942	3,786	71	12	7	10
1943	.....	....	....	....	....
1944	.....	....	....	....	....
1945	.....	....	....	....	....
1946	†9,788	61	10	11	17
1947	‡16,370	63	8	12	16

*Includes non-scheduled carriers. †Includes 95,000 hrs. not classified. ‡Includes 120,000 hrs. not classified.

factors controlling the economics of the business but these listed are the principal ones. The recent wring-out of many companies and individuals can, in most cases, be attributed to their failure to recognize these fundamental truths.

As an engineering industry what success has been ours since the end of the war definitely stems from design and engineering improvements. We believe that a straw vote of the industry would list as top contribution the development of the flat engine which has done more than any other one factor to make for better performance in the postwar models—higher horsepower in the flat design giving more miles at more speed for less money—true engineering progress. Emphasis on the flat engine's importance does in no wise detract from the excellent improvements in basic airframe design and construction, or in propellers, communication equipment and other components of the modern personal plane. Who of us will deny that if the same investment in time, energy and genius expended engineering-wise had been applied to our merchandising methods we might have 50,000 more late model modern private planes in service today? But sales engineering has failed to keep pace with product engineering. In many instances manufacturers do not allow their distributors and dealers adequate discounts. The inability of factory executives to understand just what it takes to sell airplanes, even in a period of high national income, is tragic. Cessna jumped into top position in 1948 sales after launching a hard-hitting merchandising program consisting of all of the necessary ingredients from incentives through discounts to actual work and training out in the field. When a company starts worrying about the composition and welfare of its sales outlets and does something about it you will generally find a healthy sales volume as in the case of Cessna. Other manufacturers are beginning to follow suit.

We are convinced that the age-old complaint of over-regulation on the part of Uncle Sam is no longer valid. The liberation of private flying from burdensome regulations is here now, its pace determined only by the industry itself. In recent years the government has gone to the industry and in effect said: "Tell us what you want changed and we'll change it." There has been too wide a variance in industry opinion, so until the industry can get together with some measure of unanimity and say just what it wants changed in the present regulations, don't blame the CAA for making progress slowly.

It is now recognized that all the Federal regulations in the world won't stop damn fools from killing themselves. Nor can regulations reduce many of the accidents that mar private flying's poor safety record. There were 902 airplanes demolished at a cost of 643 lives from stall-spin accidents alone in 1947. Recent intensive research under the direction of CAA's brilliant Dean Brimhall by Dr. P. J. Rulon proves that pilots, amateurs or veterans, simply can't recognize the approach to the stall and their data points to the fact that the only solution to this age-old black eye is the stallproof airplane. Enough stall warning indicators are now in use to produce dependable statistics which indicate that this instrument is worth its weight in gold. Research goes on for constant improvement in the product but much is yet to be done toward improvement of flight training techniques. Perhaps application of improved curriculas such as the cross-country course and the use of four-place aircraft for primary training will help raise the present standards of flight instruction.

Some of the restrictions governing what a private pilot can and can't do are now in the process of being removed. Clarification of what constitutes flying for hire will be forthcoming as a result of cooperative efforts between the CAA and the Administrator's Non-Scheduled Flying Advisory Committee. About the only restriction on the private pilot will be that he does not receive pay for pilotage. It's planned to permit him to haul merchandise, samples and other paraphernalia connected with his business or profession and even dust and spray his own crops if he's a farmer.

The Non-Scheduled Flying Advisory Committee is seeking cooperation from the CAA on a new "Air Taxi" category which will encourage the development of lucrative air taxi business by fixed-base operators all over the nation. Some of the most satisfied executive aircraft owners today discovered the advantages of aircraft ownership and utility from a charter trip. Many business and professional men who might not be logical prospects for airplane ownership can and

Aircraft and Airmen Certification Summary

As of Dec. 31	Total U. S. Civil Aircraft	Total Pilots	Airline Transport	Commercial	Private	Student Permits Per Year
1934	8,322	13,949	676	7,484	5,789	11,994
1935	9,072	14,805	736	7,362	6,707	14,572
1936	9,229	15,952	842	7,288	7,822	17,675
1937	10,836	17,681	1,064	6,411	10,206	21,770
1938	11,159	22,983	1,159	7,839	13,985	15,556
1939	13,772	33,706	1,197	11,677	20,832	29,839
1940	17,928	69,829	1,431	18,791	49,607	110,938
1941	26,013	129,947	1,587	34,578	93,782	93,366
1942	27,170	166,626	2,177	55,760	108,689	93,777
1943	27,180	173,206	2,315	63,940	106,951	36,802
1944	27,919	183,383	3,046	68,449	111,888	51,276
1945	37,789	296,895	5,815	162,873	128,207	77,188
1946	81,002	400,061	7,654	203,251	189,156	173,432
1947	94,821†	433,241*	7,059*	181,912*	244,270*	192,924
1948		500,000 Est.				

*As of April 1, 1948. †Includes gliders.

Other Certifications

As of Dec. 31	Glider Pilots	Mechanics	Parachute Riggers
1934	109	8,156	358
1935	145	8,432	381
1936	138	8,738	393
1937	161	9,314	362
1938	172	9,884	397
1939	170	10,296	425
1940	138	11,177	444
1941	160	14,047	618
1942	211	18,097	1,004
1943	1,435	20,805	1,637
1944	2,412	23,157	939†
1945	2,438	27,272	1,029
1946	.....	.....	.....
1947	2,995	51,102	1,643*

†Includes 473 parachute technicians.
*Classified as parachute technicians.

Accidents

(NON-AIR CARRIER)

Year	Miles Flown (Millions)	No. of All Accidents	No. of Fatal Accidents	No. of Fatalities
1934	75.6	1,491	184	323
1935	84.7	1,503	161	253
1936	93.3	1,674	155	261
1937	103.1	1,900	184	280
1938	129.3	1,861	176	274
1939	177.8	2,222	203	315
1940	264.0	3,471	232	359
1941	346.3	4,252	217	312
1942	293.5	3,324	143	220
1943	.....	3,871	167	257
1944	.....	3,343	169	257
1945	.....	4,652	322	508
1946	874.7	7,618	690	1,009
1947	1,502.4	9,253	882	1,332

will regularly patronize professionally operated air taxi services utilizing the efficient and comfortable four-place airplanes now on the market. But many of them evenutally will become aircraft owners when they see first hand the economic justification of ownership. In effect they pay for the demonstration.

The CAB will have to make provisions for limited instrument flying in single-engine aircraft if the air taxi idea gains momentum. We do not mean that full-fledged instrument operations should be permitted such as low instrument approaches and the kind the airlines fly, but for any measure of success competent professional air taxi pilots must be permitted to take-off when improvement is just over the horizon or fly through overcasts and "on-top" when the destination is open and well above minimum ceiling conditions. There is no doubt but that the average fixed-base operator engaged in miscellaneous flight operations must get into and become an integral part of the air transportation business.

Another field of aviation endeavor that is opening up new horizons of utility and tremendous new sources of income is in agricultural aviation. Here again the potential market is practically unlimited. Seeding, fertilization, weed and insect control are scheduled to hit some astounding proportions during the year. When you compare the number of acres of land now being worked by aircraft with the number of acres that need to be worked you have a potential that staggers the imagination. This phase of flying has its serious problems and growing pains but here again they will not be solved by Federal regulation. Education, experience and local cooperation with agricultural agencies will provide most of the answers. There is no room for the haphazard, fly-by-night or irresponsible operator looking for easy money. Agricultural aviation is too highly specialized and scientific for top-water minnows. It is bound to emerge within a few years as one of the largest fields of aviation endeavor. Already research people and at least one manufacturer are at work on specialized airplanes for this business. Luscombe's recently announced Silvaire Sprayer has found a healthy market almost overnight.

The use of high performance four-place airplanes in the big Cessna, Bonanza and Navion class for small feeder line operations is also coming into its own and looks like a natural interim solution to the problem of short-haul scheduled feeders that can't justify the use of expensive and large multi-engine transports. Facts and figures are being compiled for presentation in several cases before the Civil Aeronautics Board. There is no reason to believe that a deaf ear will be turned to the request for experimental certificates in several instances where particular circumstances justify the use of light airplanes in scheduled services. Just last month we witnessed the establishment of a 250-mile feeder route by a small company. In one week's time the corporation was formed, airplanes put in service and an application for a certificate of con-

Cessna factory of 1934 (top) has been greatly expanded into property shown below, now world's leading producer of lightplanes. Over 14,000 Cessnas have been manufactured.

—(Cessna Photos.)

Cessna Facts and Figures Parallel Industry Growth

THE Cessna Aircraft Company of Wichita, Kansas, emerged last year as the leading lightplane manufacturer in the nation. Cessna's growth during the 15-year period of 1934-1949 epitomizes both progress and development in the lightplane field during that stretch of years when Cessna manufactured some 14,000 airplanes.

Although Cessna started building airplanes in 1927 only 290 units were delivered up to March of 1934. Here are some comparative figures which reflect this amazing growth:

	March, '34	March, '49
Monthly Payroll	$ 8,000	$ 413,000
Net Worth	300,000	5,733,778
Employment	50	1,635
Models in Production	1	5

One of the truly great airplanes of all times was the Cessna C-34, the basic ship which was constantly improved throughout subsequent years. The C-34 ran off with all of the prizes at efficiency races. Even today few airplanes can match its amazing performance. Powered with the 145-hp. Warner, the C-34 was a four-place airplane giving an honest 140-mph. cruising and 160-mph. top with a range of 3½ hours on 35 gallons of gasoline. Empty weight was 1,300 and gross was 2,220.

Of course the type of purchaser who flew the C-34 fifteen years ago is the type who purchases the 240-hp. and 300-hp. 190 and 195 series Cessnas today. But you can't help but doff your hat in passing to the old C-34, especially when that bright young "grandson," the Cessna 170, with all its bright metal instead of tube and rag, plush comfort instead of close quarters and that old rugged wing spar overhead, cruises around 120 mph. on the same amount of hosspower and approximately the same gross weight! And although the old C Series Cessna has been replaced by its 190 Series offspring, you'll still see them around doing yeoman service for owners who swear there never was a finer airplane.

venience and necessity forwarded to Washington. The line is using Beechcraft Bonanzas and the load factor is high although operations, as in the case of other similar small line companies, are limited to daylight contact flying. Realism forces the re-acceptance of the small lightplane as a common, scheduled carrier until such time as traffic and route development force the development of a true multi-engine feeder type airplane for all-weather, day and night operations.

Looking back over the past fifteen years you are impressed with the fact that most of the progress in the lightplane field has been in design and engineering improvements and with the fact that the fixed-base operator is still the hard core of the business with everyone else from the manufacturer to the private owner revolving around him. He's a pretty rugged guy, like the excellent new airplanes now available, and between the two — the airplane and the man — the lightplane curve is bound to straighten out and start climbing again. The documentary evidence in this issue of healthy growth in the lightplane field is irrefutable. We are still thinking and doing things very much like we did fifteen years ago in this branch of aviation. And it is anarchronistic when you compare

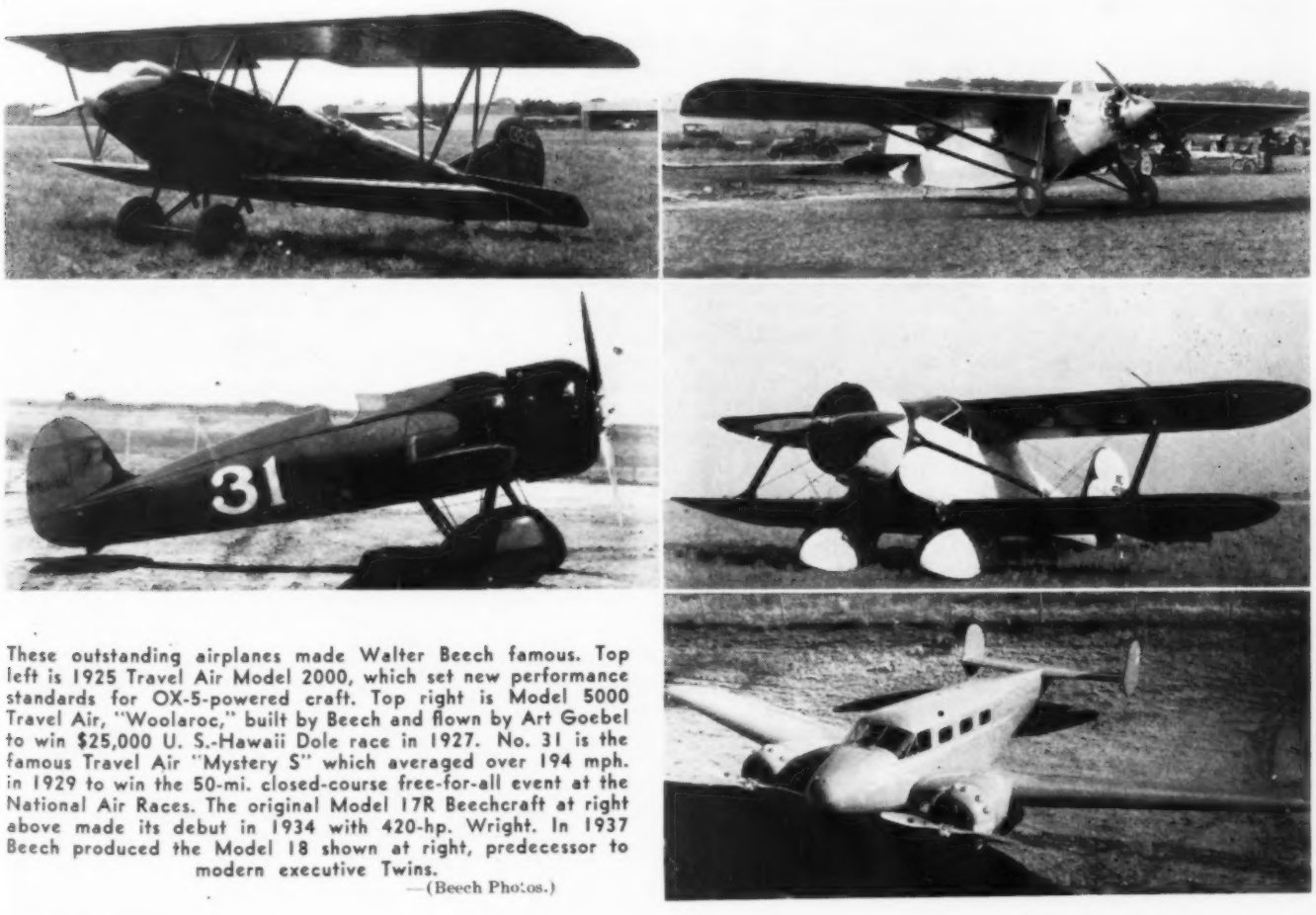
(Continued on page 45)

A new world's distance record for lightplanes—4,957.24 Great Circle miles from Honolulu to Teterboro, N. J., was made in this 185-hp. Beech Bonanza March 7-8 by Bill Odom. Time, 36 hrs. 2 mins.; actual distance flown, 5,273 mi.; ground speed, 146.3 mph.; fuel consumption, 272.25 gals. for 7.56-gph. average; gross takeoff weight 3,858 lbs. (50% over normal).

Symbol of Progress

CALLING it a new international record, NAA said Bill Odom's Honolulu-Teterboro Bonanza flight was the greatest non-stop solo distance flight in aviation history. Some looked upon it as a "stunt." But from all angles it symbolized lightplane progress at its best, as the flight data prove. The accomplishment was a combination of pilot, aircraft design, engine and accessory efficiency. Ted Wells, Beech Aircraft chief engineer, summed it up like this: "Every once in a while someone comes out with a solemn pronouncement that the airplane manufacturers have done nothing to improve their postwar airplanes over prewar airplanes. It is true that we still have not developed a combination airplane-automobile-submarine-motorboat that will go 200 mph. and sells for $1,000, but Odom's flight certainly proves that the modern light airplane

(Continued on page 47)



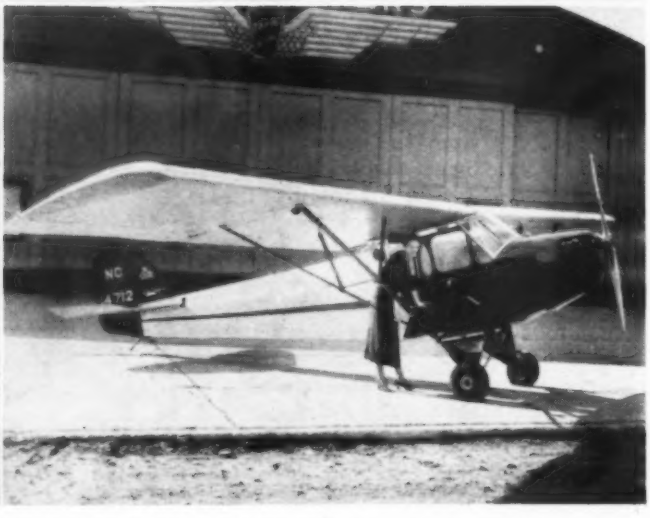
These outstanding airplanes made Walter Beech famous. Top left is 1925 Travel Air Model 2000, which set new performance standards for OX-5-powered craft. Top right is Model 5000 Travel Air, "Woolaroc," built by Beech and flown by Art Goebel to win $25,000 U. S.-Hawaii Dole race in 1927. No. 31 is the famous Travel Air "Mystery S" which averaged over 194 mph. in 1929 to win the 50-mi. closed-course free-for-all event at the National Air Races. The original Model 17R Beechcraft at right above made its debut in 1934 with 420-hp. Wright. In 1937 Beech produced the Model 18 shown at right, predecessor to modern executive Twins.

—(Beech Photos.)

This Taylor Chummy, predecessor of Cubs, had 5-cylinder Kinner 90 and was "big" $4,000 aircraft.

Here's granddaddy of all Cubs—No 1 experimental with a 9-cylinder Salmson radial of 45-hp.

AeroMarine engine of 40-hp. powered this Cub, which sold for around $1,400 without the floats.



Here's one of the early J2's, which became success with improved Continental A-40 and cabin refinements.

—(Piper Aircraft Corp. Photos.)

Time to Mature

By W. T. PIPER
President, Piper Aircraft Corp.

WHEN we built the first Cub in 1930, our greatest trouble was to find a satisfactory engine. Planes built before that time were generally powered with surplus Army engines, which were both heavy and expensive to operate, whereas we knew that if the lightplane was to be successful, it must have a proper power plant. The best motor available at that time was an imported 9-cylinder engine. Although it met the power and weight requirements, it cost over $1,000 when laid down in this country, which prohibited its use in a low-priced airplane. There was also the Szekely, made in Holland, Michigan, which had a bad habit of shedding one or two cylinders in flight, until some pilot came up with the bright idea of tying the three cylinders together with a cable which was tightened by a turn-buckle.

The Continental Company was testing their A-40 engine, but the first one of these was not released until the Spring of 1931. When it was available it seemed the answer to our problem—that is, until we had flown it a little while. We then found that the cylinder gasket head would blow out frequently. Magnetos either broke or became so full of oil that they would not function, the carburetor had what we called a "built-in miss" which was very disconcerting, but worst of all the crankshafts were held in place by a plate on the rear and broke in less than 100 hours of service. Having no other satisfactory engine, we were compelled to use the Continental and one by one the "bugs" were removed until it became quite reliable.

Our first engine had only single ignition. The plane, with its open cockpit, carried no cabin heat, air speed indicator, or compass. The engine also iced so infrequently that no carburetor heat was used and we were unable to explain the occasional slowing down of the engine on damp days. Altogether, the plane was so unreliable that we generally sent an automobile along with the airplane to make sure that the pilot reached his destination.

It was not until 1938 that we had anything better than the 37-hp. Continental A-40. In that year the Franklin Aircooled motor and the Lycoming engine, as well as the 50-hp. Continental, were first produced. They all proved to be very satisfactory engines and in a year or so their power had been increased from 50 to 65, which was the power available until recently. Along with this increase in power came the enclosed cabin, the additional instruments and both cabin and carburetor heat as standard equipment. The tail-skid which formerly acted as a brake was replaced by a tailwheel and hydraulic brakes were installed. With the increase in power we were able to greatly improve the performance of the planes. When Cubs were

first made, the important question was not how fast or how far you could go, but could you get over the obstacles at the end of the field. The propellers had to be designed for maximum performance on take-off rather than for cruising. The 65-hp. engines allowed us to carry more load and the original nine-gallon tank was increased to fourteen and finally to eighteen gallons.

New models were added to the line from time to time. The Coupe was one of the most roomy side-by-side planes of its time, but should have had a stronger engine. The 3-passenger Cruiser was especially designed for passenger hopping and the seat was arranged so that the pilot could sit in front and his male passenger could see that his companion would not fall out without being observed. This proved to be a money-maker, but in due time the demand for side-by-side seating was so great that it was discontinued and was replaced by a 4-passenger plane.

While these changes in the airplane models were taking place, the aircraft engines were also greatly improved. Dual ignition became standard equipment and electrical starters and generators were added. The more powerful engines gave such increased performance, especially at take-off, that they have, to a great extent, eliminated the call for smaller engines.

In 1948 we tried the experiment of building a very low-priced side-by-side plane which proved very popular, although it was put on sale at the time when the 2-place plane market was saturated. This model, with a small wing span and short fuselage, handled nicely, being especially good on the ground on windy days. By changing to a 108-hp. motor and lengthening the fuselage, we were able to make the small 4-place Clipper which is now our most popular model.

Our early troubles when they occurred seemed tragical, but when looking back upon them they are amusing. Airplanes are firmly established as a means of transportation but there are many things which must be done. One of our greatest weaknesses is the lack of ground facilities. We need many times the number of landing fields which we now have. At first they should be inexpensive and improvements added as the traffic warrants. There is much talk about the necessity for having them close to town, but the closeness should be measured in terms of time and expense. If a field is two miles from town and the only way of getting there is by walking, it is for all practical purposes much farther out in the country than a field ten miles away which has frequent and low-priced bus transportation.

Many operators today are having difficulty keeping their head above water and are wondering what will happen when the number of fields increases. We do need additional fields, but the large majority of them need not have operators. The gassing, servicing, etc. required by the planes located on these fields should come from larger fields which have facilities.

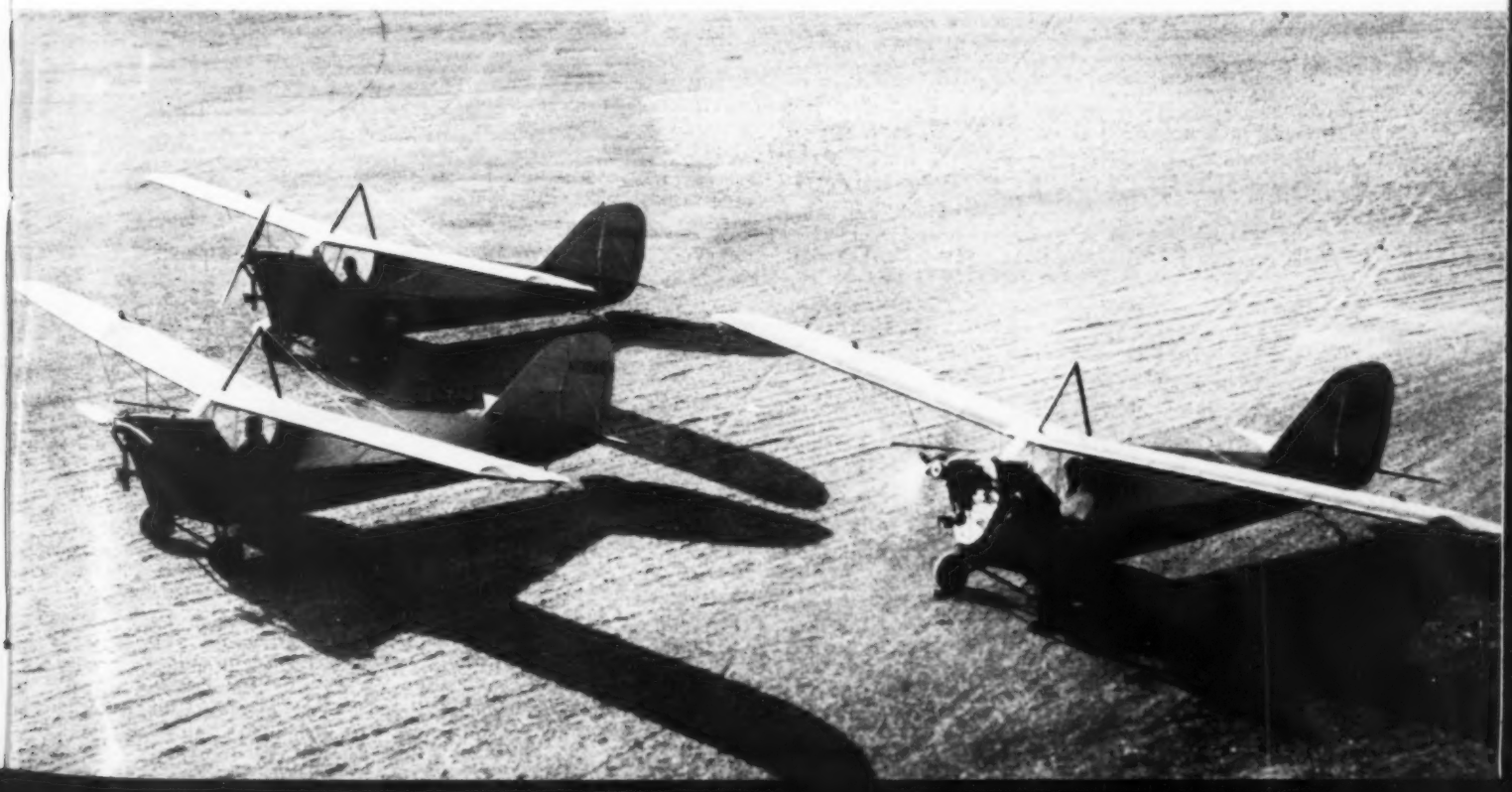
For many years, we have boasted that we can fly places as economically as we can go by rail, always meaning first class transportation and including meals, tips, berths, etc. The number of people who travel that way is comparatively limited. The bulk of the people travel either by their own automobiles or buses or day coaches. With the small low-priced 4-place planes now available, we are in a position to compete with the bus and day coach which are the means by which the majority of trips are made.

The light aircraft industry has made tremendous progress since it was first started in this country with the little 2-place Aeronca so commonly called the "Flying Bathtub". We have good dependable planes which make a trip in one day which can only with difficulty be made in three days with automobiles.

In addition to the improved ground facilities and the improved planes which all manufacturers are trying to produce, the industry needs one thing, which is rarely, if ever, mentioned and that is *time to mature.* It takes two things to successfully own an airplane and they are sufficient money to pay for the gasoline and other expenses and enough spare time. You can not successfully use an airplane a few minutes each day because the journeys you wish to make with them are too long. The young people who have been taught to fly have neither of these two things. *The real need for aviation is time in which to mature.* In another 25 or 30 years the young pilots of today will be the old business men and will have both the time and the money.

(Continued on page 56)

Aeronca "Flying Bathtubs", with 37-hp. Aeronca engine, gave lightplane industry its start.
—Ed Ritchey Photo.



Less Regulation for More Development

The CAA Administrator compares civil aviation gains and losses to suggest future needs and opportunities for government promotion and development

By D. W. RENTZEL
Administrator
Civil Aeronautics Administration

WHAT else can happen to civil aviation that hasn't happened in the decade-and-a-half 1934-1949?

These eventful years have shown civil aviation to be an industry that can survive depressions, doldrums, prosperity and rationing, but it can hardly be said that these years contained any lengthy period of solid, steady and healthful growth. Perhaps that is the kind of period that lies ahead, since virtually everything else already has happened.

The civil aviation industry thus far has profited greatly from the occasional boosts which events have given it. The upsurge of flying, plane manufacture and flight training that followed Lindbergh's flight in 1927 has been approached three times during the last 15 years. The first time was the Civilian Pilot Training Program, a period of real prosperity for the aviation industry.

In 1938-1939, Robert H. Hinckley, advised by another Federal servant, Dean R. Brimhall, proposed the Civilian Pilot Training Program as another shot in the arm for an anemic, if not actually ailing, aviation industry. The announced purpose was to produce more customers for the industry by training pilots who would buy and fly airplanes. It is hardly necessary to review the great benefits of that program to the industry, or to list its accomplishments in training pilots for a war in which pilots frequently turned the tide toward victory.

This program, designed to increase the number of customers for the aviation enterprises of this country, had started to achieve its civilian goal when war clouds changed its whole complexion, but it did build up the plant of the operators and make it possible for some of them to plan for the future. In considering aviation statistics, however, we must remember that CPT days and war days were quite abnormal.

A second boost came just after the war when the pent-up demand for personal planes pushed factories again into high gear.

Still a third notable boost—almost simultaneous with the second—came with the inclusion of flight training in the veterans' education program, and many a school and factory has felt the impact of this government-financed business.

From Regulation to Promotion

Now that GI training and postwar demand have begun to fade, the industry finds itself back on its own. All the problems of education, salesmanship and design lie on the table before its planners and boards of directors. And government still sits at those tables in an advisory capacity, still feels the urge of that order, written by Congress into the Civil Aeronautics Act of 1938 to "encourage and foster the development of civil aviation in the United States."

Most of the major Federal agencies originated in a need for regulation. The predecessor of the Civil Aeronautics Administration and the Civil Aeronautics Board was born out of the demands of the industry itself to apply rules to the conduct of the aviation business. Like a few other agencies, however, the CAA faces the happier prospect of being able to move out of regulation and into the field of promotion. The Department of Agriculture, for example, has long been outstanding in its promotion of the farmer's interests through development of agriculture, and this function has been recognized substantially by Congress. Personally, I wish for the day when this function of development by the CAA can be emphasized, and I believe that when it is, the whole industry will profit by it.

The CAA has received its share of criticism for "over-regulating." There is no doubt some of this criticism has been deserved. It is too long a subject to treat here, but the essence of the matter is that we are in a new and changing business, dealing with the unnatural business of men flying in the air like birds, and we have been forced to regulate for safety. Regulations have generally been for the protection of the whole industry, and, since our employes generally come from the industries with which they work, it is hard to believe that they completely change character the minute they change payrolls. Important steps have been taken in the 15 years toward reduction of regulations, and increase of development.

Aids to Air Navigation

	Miles of Airways Implemented By CAA	Radio Range Stations	Non-Directional Radio Beacons	U. S. Operated Airport Towers	U. S. Operated Airways Centers	Airways Communication Stations
1934	19,081	112	73	.....	....	205
1935	22,012	137	57	.....	....	206
1936	22,245	146	57	.....	....	203
1937	22,319	180	55	.....	8	245
1938	23,723	215	50	.....	8	286
1939	27,074	244	44	.....	11	321
1940	32,100	292	48	.....	11	365
1941	36,062	331	48	.....	14	413
1942	38,498	311	40	61	23	430
1943	41,506	329	63	101	25	408
1944	42,549	342	84	104	28	439
1945	43,285	360	88	107	39	438
1946	43,403	414	74	115	29	397
1947	45,393	465	81	134	31	403

Landing Aids to Air Navigation

	Instrument Landing Systems	Precision Beam Radar	Airport Surveillance Radar
1940	1	....	....
1941	1	....	....
1942	1	....	....
1943	8	....	....
1944	9	....	....
1945	9	....	....
1946	31	....	....
1947	60	4	4

More Utility Flying Needed

To me the most significant single fact about private flying in the last 15 years was revealed by two surveys which the CAA made. We found out that the aviation industry in 1946 and 1947 was its own best customer; that is, that most of the flying done in non-scheduled, personal-type planes, was done in instructing students; 50 per cent of the total civil aircraft flown in 1947, and preliminary indication are in one form or another with aviation, and those aircraft accounted for 68 per cent of all the flying done in 1947. Persons outside the aviation industry owned 37 per cent of the planes and did 23 per cent of the flying.

These figures held for 1946, and 1947, the preliminary indications are that they will be true in the survey we are now starting of aircraft in use in 1948. I believe this basic truth would hold for all the years from the end of World War I to date. This is not a healthy situation.

There was an indication that this situation was about to be changed when civil aircraft registration rose in 1946 from 37,880 to about 81,000, and when the volume of flying increased in 1947 to 16,370,000 hours from the 1946 figure of 9,788,000 hours. Our 1948 study will give valuable light on this trend, but we fear that the total volume of flying in 1948 was less than in the previous years.

The significant fact is that there has been no outstanding widening of the circle of the general public to whom the airplane appeals. There have been heartening increases in the production of four-place planes and in the number of farmers and big business executives who have found utility for airplanes, but even the saturation of these two markets will not begin to tap the full possibilities of personal flying development.

Such development comes high, and I am convinced that Federal funds invested in it would produce results. An Aviation Development Office is being set up in the CAA and it will have this as one of its top problems. It is needless to say that complete cooperation of the industry is absolutely essential if this is to have any effect. Government cannot do it alone.

CAA-Approved Flying Schools

Year	Number of Schools
1941	760
1942	550
1943	NA.
1944	NA.
1945	558
1946	1,557
1947	2,039
1948	1,807

Civil Aircraft Registrations by Year of Manufacture

AS OF JANUARY 1, 1949

Year	Number
1935	312
1936	608
1937	1,052
1938	949
1939	2,569
1940	5,463
1941	8,573
1942	6,521
1943	7,700
1944	1,975
1945	2,258
1946	32,353
1947	12,760
1948	5,999
1949	23
Other	6,882
Total	95,997

Training and Education

Two important training and education programs have featured Federal development activities in recent years. They are the foreign training program which the CAA has conducted in cooperation with the State Department, and our air education program.

Commercial aviation activities in the other Americas now are studded with graduates of these inter-American programs, the seventh class of which now is under way. Trainees have been youngsters trained as mechanics and air traffic controllers, pilots, engineers and airway technicians. They have gone back into the air activities of their native lands, replacing representatives of the Axis nations which, before the war, had aggressively promoted their own interests in South America.

In addition to these trainees, carefully selected in their own countries, this program has included indoctrination in the U. S. civil aviation methods and equipment for officials higher up in the flying business of their countries. These men have been informed on United States airways, airlines, training and air education procedures, and have returned to their government posts with favorable impressions of our ability and willingness to help in building up the flying activities of their nations.

A second class of 50 Filipinos now is studying air traffic control and communications as a part of the Philippine rehabilitation training program. They will return to their Islands to take over operation of their own airways, imbued with our methods and acquainted with our manufactures. In all these programs the intangible elements of international good will are given high importance by CAA training officials.

At the lower end of the age scale, a CAA program has planted the air age firmly in thousands of public and high school curricula over the country. Working with education authorities, CAA educationists have integrated aviation matters into such courses as geography, arithmetic, the social sciences, physics, so that students almost daily have new evidence of the effect of aviation on their daily lives. No figures are available to indicate how many individual students have been exposed to this air age learning, but many thousands of teachers have studied in practical training courses, and have experienced actual flight as

(*Continued on page* 43)

Civil Aircraft by Total Rated Take-off Horsepower

AS OF JANUARY 1, 1949

Single Engine	86,885
Two Engine	4,355
Three Engine	20
Four Engine	544
Eight Engine	1
Total	91,805
Unspecified	3,660
Gliders	504
Lighter-Than-Air	15
Balloons	13
Grand Total	95,997

SINGLE-ENGINE

Total Rated Take-off Horsepower	Number of Aircraft
50 & Under	2,169
51-70	34,773
71-100	20,513
101-200	15,890
201-350	7,581
351-500	4,806
501-700	1,062
701-1000	7
1001-1300	36
1301-1600	35
1601-2500	12
2501-Over	1
Total	86,885

TWO-ENGINE

74-449	155
450-999	2,551
1000-1999	86
2000-2999	1,173
3000-3999	101
4000-Over	289
Total	4,355

THREE-ENGINE

300-700	8
701-1000	8
1001-1725	4
Total	20

FOUR-ENGINE

1400-4999	19
5000-5999	318
6000-8800	203
8801-Over	4
Total	544

EIGHT-ENGINE

20,000 H.P.	1

An industry spokesman reviews the challenges facing aircraft manufacturers

Our Changing Pattern of Progress

By LELAND D. WEBB
Capt., U. S. N. (Ret.)
Acting President, Aircraft
Industries Association of America

ON the surface, there are many parallels between 1935 and 1949. It is a temptation to draw these parallels and to let it go at that. Many of the frustrations are identical, and to a person close to the aviation business it is these frustrations that oft-times predominate.

But when we forego the temptation and forget the parallels, all who have had a part in aviation in the last 15 years can be proud indeed of their role in the development of this vehicle in which man has shaken himself free of the earth and the oceans.

In 1935, we were building planes with speeds of 350 mph. (the world's record then was held by a seaplane at 440 mph.) Today, the official record stands at 670 mph. while unofficial speeds several hundred miles beyond the speed of sound have been attained.

Civil pilots, other than airline, flew less than a million hours in 1935. Today the total is something over 15,000,000.

This recordation could go on at length. In virtually every category of aviation, the strides over the period of the 15 years have been tremendous. That much remains to be done is no reflection on an industry that has met the varied challenges of these years.

However, as we have changed the world picture through our development of aviation, so has this change affected our position. Our problems are changed as much as our capabilities have changed.

Of the many problems that confront the people in aviation in this country today — and by that I mean all phases of combat and transport aviation — the one basic and primary problem is that of convincing the country, its people, its administration and its Congress, of the ever present need for continuity in production and development, and the pressing importance of *time*.

Through our history we have shrunk behind sea coast defenses after every war, and we have been given the time and the resources from that particular period of history to meet the successive threats to our security. Our thinking historically has been dominated by sea coast defenses and by the speed of whatever ships could reach our shores. Each time we have been secure within our borders to build up armies, transport ships and escort navies to enable us to enter foreign wars; or have been secure to improvise privateer fleets and coastal patrol vessels to offer partial protection while we organized our armies for home defense.

It is difficult to change this pattern of historical thought. Yet, change it

(*Continued on page* 33)

U. S. Military Aircraft Acceptances by Types and Weight

(EXCLUDING EXPERIMENTAL)

	1940	1941	1942	1943	1944	1945	Totals
Bombers							**98,783**
4-Eng.	60	317	2,615	9,615	16,331	6,865	35,803
2-Eng.	953	3,249	7,247	10,361	10,058	4,454	36,322
1-Eng.	178	549	2,765	9,379	8,614	5,173	26,658
Fighters							**101,427**
2-Eng.	12	206	1,323	2,246	4,733	2,125	10,645
1-Eng.	1,673	4,210	9,446	21,742	34,140	19,571	90,782
Photo-Rec.	121	727	1,468	734	259	531	3,840
Transport							**24,281**
4-Eng.	8	6	70	183	554	749	1,570
2-Eng.	218	359	1,582	5,981	7,900	3,675	19,715
1-Eng.	64	167	332	848	1,380	205	2,996
Trainers							**58,560**
2-Eng.	16	854	3,847	3,359	1,237	0	9,313
1-Eng.	2,715	8,519	13,784	16,580	6,340	1,309	49,247
Other	1	270	3,357	4,870	4,772	3,057	16,327
TOTALS	6,019	19,433	47,836	85,898	96,318	47,714	303,218
Airframe Weight in Millions of Lbs.	23.1	81.4	275.9	654.6	962.4	540.5	

NOTE: Table includes U. S.-Financed Canadian production and all 12-pl. or larger civil transports produced during 1940-1945. "Other" includes special purpose rotary wing and liaison. Gliders and lighter-than-air are excluded. Weights exclude spares.

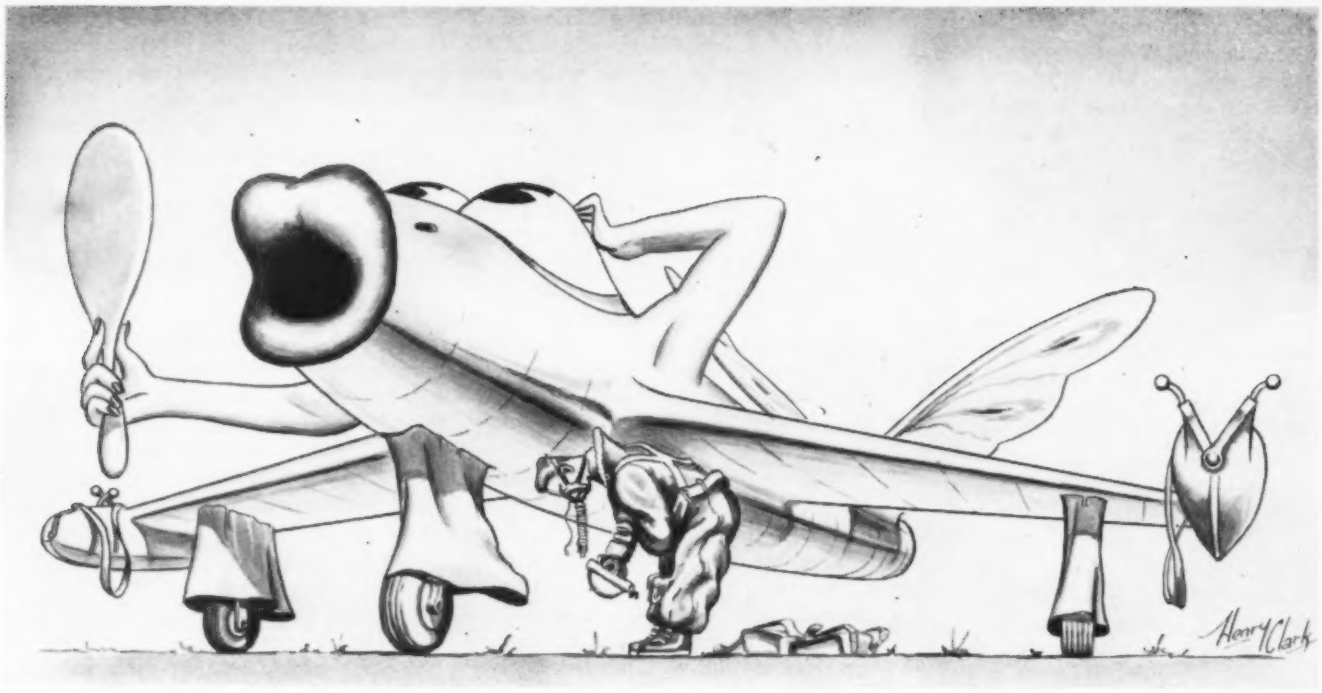
Employment, Hours, and Earnings in the Aircraft and Engine Industry

Year	Employes	Average Weekly Hours Aircraft and Parts	Average Weekly Hours Engines	Average Weekly Earnings Aircraft and Parts	Average Weekly Earnings Engines	Average Hourly Earnings Aircraft and Parts	Average Hourly Earnings Engines
1933	9,626	NA		NA		NA	
1935	14,931	NA		NA		NA	
1937	31,720	NA		NA		NA	
1939	63,933	41.5	44.1	$30.34	$36.58	$0.745	$0.835
1940	122,609	43.2	45.8	31.40	38.50	.743	.840
1941	291,782	45.3	46.9	37.75	47.04	.840	1.033
1942	693,082	47.0	48.7	46.21	59.03	.987	1.212
1943	1,203,842	46.4	47.4	49.76	59.81	1.072	1.262
1944	1,176,593	47.1	46.6	54.50	61.14	1.159	1.312
1945	655,191	45.7	44.5	54.37	57.93	1.191	1.301
1946	191,864	40.6	41.2	52.24	54.78	1.288	1.330
1947	185,073	39.8	39.9	54.11	56.28	1.360	1.409
1948	178,717	40.3	40.8	58.76	62.82	1.457	1.538

Personal Plane Production

Year	Units	Value (Thousands)
1934*	618	$ 2,125
1935*	917	2,525
1936*	1,423	3,454
1937*	2,042	4,516
1938†	1,711	3,764§
1939†	3,555	7,821§
1940†	6,472	14,238§
1941†	6,597	14,513§
1942†	923	2,031§
1943	.....	.....
1944	.....	.....
1945‡	1,946	NA
1946	33,254	92,524**
1947	15,515	52,469**
1948	6,966	27,906**

NOTE: 1933-1942 values exclude engines. From 1945 on values include engines. *Airframes, excluding engines, valued under $6,000. †Airframe value under $6,000 or of less than 4,000 pounds gross weight. ‡Under 4,000 pounds gross weight. §Estimated at $2,200 per airframe. **Manufacturer's net billing price. Data for companies reporting to Personal Aircraft Council.



They've gone too far too fast in building to suit Buck Rogers. Everything is meeting the torch, eliminating enthusiasm which more attractive airplanes once encouraged.

Passage of an Era

A sentimental saga to go with your album of bygone favorites

By HENRY CLARK

WE second the motion—aeronautical progress is wonderful and one of these days everybody will be flying everywhere. So don't get us wrong. All we want is to take it a little easier and not quite so fast. Let the Wild Blue Yonder have its projectiles and rockets and jets. But us, well, we prefer airplanes to "aircraft." They've gone too far too quick with this "new look" business of eliminating wings and tails and propellers and paint. All they have left is a weird collection of whatzits which can't be called airplanes but which are called "aircraft" for want of something better.

Know what we mean? To see if you do, try our test for average stick stranglers, which is simple and runs along like this: On an empty stomach, bury yourself in books and articles about supersonics and jet propulsion and study the profiles and plan forms of F-86's, X-1's, B-49's and similar Buck Rogers boilers. Soon you feel creepy—confused about the future of flight. Also hungry. Your distorted view of what's ahead kicks around all kinds of ideas about wingless space ships, delta wings and flying stovepipes — you're day-dreaming in the realm of Sunday Supplement artists and about all you can conclude is that the atom is going to explode a lot of things that aren't bombs. You don't know beans about atoms. So you wonder if you'll get along all right. This hands you quite a wallop and you clasp Junior closer, only to be jarred back to reality by the kitchen call to dinner. At the festive board you find food a good cure. Fission? Phooey. You eat your fill. After your second cup of coffee you're soft-headed once more. So you think in reverse. Why worry about jets and suction airfoils and compressibility? Your interest, after all, is in the pleasures of flight itself. So your thoughts go back to one of the *real* airplanes of yesteryear—wasn't that Travelair a smoothie to fly? Will they ever make another cabin as comfortable as the leather plush job Waco used to furnish? Instead of worrying about the future, you make the rounds of neighborhood airports in search of friendly company. Now do you know what we mean?

Down long rows of Cubs, Cessnas, Ercoupes, Aeroncas and such you look for something the turbine boys would call a "kite." You've been all over town before you find it—not a canvas relic of 1918 but a shiny biplane from 1938—something modern (you grew up in the Thirties). Yep, it's an old Waco, PCF series. Smiling, you poke its waxed red fuselage, its bright yellow wings. Its flying wires are nice to pluck and you love that twang. What the devil ever happened to such fine airplanes? They were everywhere a few years ago but now PT-17's and N3N's are all the biplanes you see. Even the slick D-17 stagger-wing Beechcrafts are disappearing.

A Nice Era Ends

While your mind quickly recounts costs, maintenance and other contributing factors, you lean over the good old forgotten Waco's cockpit there in the weeds and inhale an aroma of hot leather, fabric, gas and oil. Only an airplane cockpit can smell like that—but it's not around any more. There are thousands of "aircraft" but has anybody an airplane as friendly as that old Waco or as attractive? Know what we mean? If you do, you're

wondering, as we are, what the devil ever made you so nuts about airplanes anyhow. From a kid up it was those yellow wings and singing wires. They're gone and you don't part with such stuff easily.

Don't get us wrong. We're not coveting Wright relics or Camels and Fokkers. Well, not too much at any rate, since they go back too far and had time for a natural death. But our relatively modern and beautiful biplanes should have been allowed to stick around just a little longer. They flew like an airplane ought to fly. They also looked like an airplane.

It's not that we're opposed to experimentation. Our better days saw unconventional designs and hair-raising absurdities. But these were mere stabs at the spectacular, not a trip into the unknown such as we're fooling with now.

If you grew up with flying a decade or so ago, as we did, it left you sentimental. Not a weeper, you feel just bad enough to be resentful that such a nice era has passed so soon after you've become adjusted to it. You don't mind admitting that Lindbergh and Earhart and Hawks and Post and their likes excited you. They lured you on. But just when you fitted so nicely into such a wonderful picture, evolution turned a blow torch on you. Good old Al Williams could still keep you breathless, with his bright orange biplanes. But even Al, great guy as he is, risks going overboard for the hot stuff. Fortunately he stopped just short of burning up by seating himself in a conventional Bearcat instead of a jet. For that, Al, we'll still go a thousand miles to see you fly!

But modern salesmanship is an exacting science. Eventually we'll all fall prey to it. The airlines seem resistant, for no matter what is designed for them it still resembles a DC-3 one way or another. But the designers will subdue even those diehards one of these days because they're hard at work now grooming transports for a sophisticated age with scientific gadgetry and gimcracks galore. Just give them time and they'll get around to those holes in each end. Then you'll be thankful you *were* born thirty years too soon.

If only to trim yourself for correct balance and to get a recognizable gauge on our progress, we hope you'll give a little look and study at some of our favorite bygone biplanes. You'll be amazed. Fortunate, too. For although you're on the threshold of a new age, you're well past the dangerous days yet not too surrounded by machines so technical that they'll fly you instead of vice versa. The Cub pilot who soloed last week probably won't catch our point here at all. All he wants is to get off the ground and any type of aircraft will fill his bill. But those who remember, as we do, the Wacos and Fledglings, the Great Lakes and Travelairs, Stearmans and Fords, know what we mean. To savvy this saga you had to stand along airport fences inhaling a healthy knowledge of airplane types, along with an unhealthy quantity of dust. What better time than now to amble over to your shelf and thumb through an album of airplane photos. Next to an actual airplane, nothing is quite as real as a good picture of one.

You're primed now, so Buck Rogers can go blow his top. Your album opens to an airplane that typifies all planes of our departed era. It's the Curtiss Falcon. But wait; don't be too critical and factual or you'll conclude—too soon — that such a bucket deserved to get kicked out of the air. Mellow down a bit. Doesn't it seem impossible that we have progressed so fast to leave behind such gems as the Falcon? It was notorious but also interesting—massive sweptback wings, balanced rudder, wheel pants maybe, a deep-throated Conqueror D-12 with twelve exhaust ports each side of the nose, highly prominent radiator with filler cap above the shiny spinner. Alongside you place the Douglas O-38 (remember?), sporting long straight wings, long squared-off fuselage, neat and dependable tail, high rubber tires and the whining Hornet with its myriad of push rods and rocker boxes and maybe a ring cowl. Against the Navy's 1949 Douglas D-588-2 these wagons appear to be going in the opposite direction. But they had the *airplane look* while the Skystreak and all of its brothers now resemble oversize hunks of fireworks.

Where's All the Enthusiasm?

Next page comes the Hawk series —slick taper-wings and pleasing to the eye. Then we reach Boeing's P-12, both the C and the E. They had kids busting their piggy banks open to buy and build models of them. And college boys flocked to the Air Corps to fly them. Even now an ad writer or a picture magazine will paste up something like a P-12 for atmosphere—they were that decorative. Are today's blow torches half as appealing? Turn your album's pages. You come to P-26's and P-36's and P-40's. They departed from the biplane design, so you jump over them and skip along to the Navy section.

Here starts a steady stream of pretty white, silver and yellow ships such as the 02C-1 Helldiver, the 02U-1 Corsair and the ever-lovin' Boeing F4B-4, which looked every inch a fighter. About those beautiful Grumman F2F's and F3F's, how did we ever come to junk them? The Navy was wild with color then, with glossy white fuselages, brilliant red cowls, silver wings with red chevron on top, red-white-and blue stars, wide command bands, big letters and a blue rudder. In comparison, note the drab Panther, Fireball and Banshee of later days. Sure, we know they're powerful creations. We realize drag had to be cleaned up. And we know the value of speed and altitude. But you don't have to travel at supersonic speeds in the stratosphere astraddle a skyrocket to get the feel of flight. So who wants to? Where's all the attraction airplanes used to have? It's a thing of the past, brother. And so is the kid's enthusiasm down the street.

There's even indifference around the airports nowadays. The gates are shut. The hangar's taboo. But when we were growing up the gates were always open. If you straggled inside they knew you were interested. You had the run of the field. My gang were camera bugs. We'd bike or drive from field to field, roam among the parked ships and shoot whatever we liked. And I don't believe that started the war, either. Every time some lieutenant taxied up in a noisy little P-6 and cut the gun, we'd ankle over and start shooting while the pilot sat and grinned for us. He was just as much a part of the deal as we were. That accounts, of course, for the album you're thumbing through right now. If you have one, as we do, you were an airplane fan before you were a pilot. Those were airplane days—not "aircraft" days—and you were allowed within touching distance of any of them. You weren't just curious. You wanted your fill of aeronautics. Today a youngster's visit to an airport is an organized affair, along a roped-off ramp or confined area. A thousand signs warn you to keep out and stay out. Guards watch you like a hawk, ready for riot.

Like an old-timer says, "Nobody trusts nobody no more." Engineering has shoved enthusiasm off the premises of aviation. At the big air shows all that's left is the swoosh of jets flashing overhead at fantastic speeds. To keep a hopped-up people happy they offer mass flights, noise and confusion. That brings us back where we started on page one of this effort, which finds us trying to figure out what's happening, where's everything headed and why leave behind so soon all the joys and pleasures we found in plain airplanes and "slow" flying.

Everything that once flew is steadily

Sportsman's delight, Kittyhawk looked right

Tough Travelair stole the show at any fair

Working Waco--Owner Stinis knows his planes

New York's finest flew the finest--the Fleet

Al Williams' orange and chrome Gulfhawk

This is the Waco whose wires we twanged

meeting the torch. It works in more ways than one and eliminates everything including the fraternity of fond followers which more attractive airplanes once encouraged. So put your photos and clippings and mementos in a steel cabinet if you would have them endure because they're all that remains. We're building to suit Buck Rogers now and you and your album are likely to get trampled in the rush. About all our likes can do is to move on. So cherish your Cessna, love your Luscombe, brag about your Beech, narrate about your Navion, stick to your Stinson and perambulate with your Piper and go home content with the idea that your last landing was a good one, made in something that still resembles an airplane. ★ ★ ★

O-38--Oh, how that did rate

The Hawk was game, befitting its name

Boeing P-12 was really something to see

Scrappy P-26 sounded biplane's knell

Vought was prettiest bip Navy ever bought

Helldiver for fighting, angel for looks

Fledgling trained many an eye

Beefy, beautiful Boeing--modelers' manna

Stubby Grumman was a slugger and looked it

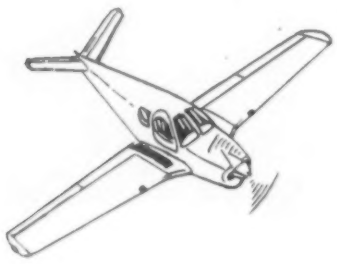
With Bearcat, Navy retained some beauty

Service After the Sale f

LOOK back through the years of aviation progress and you'll notice that the most successful airplanes have always been those backed with service after the sale. Many of the old-timers are still in operation, performing useful and efficient work in the air for satisfied owners.

Service after the sale distinguishes the Certified Beechcraft Service Stations listed on these pages. It has established them and the airplanes they sell and maintain as successful institutions in a dynamic aviation industry geared to progress.

Better airplanes are the result and their owners depend on them for improved performance. New standards of air transportation and



Beechcraft

AUTHORIZED SERVICE STATIONS

DELAWARE: Wilmington, Atlantic Aviation Service, New Castle County Airport. **FLORIDA:** Tampa, Butler Company, Drew Field. **ILLINOIS:** Chicago, Butler Company, Municipal Airport; Chicago (Wheeling, Ill.) Parks Aircraft Sales & Service, Inc., Palwaukee Airport. **INDIANA:** Indianapolis, Roscoe Turner Aeronautical Corp., Municipal Airport. **KANSAS:** Wichita, Harte Flying Service, Municipal Airport. **LOUISIANA:** New Orleans, J. D. Reed Co., Inc., New Orleans Airport. **MISSOURI:** Kansas City, Parks Aircraft Sales & Service, Inc., Municipal Airport. **MONTANA:** Butte, Butte Aero Sales & Service, Inc., Municipal Airport. **NEBRASKA:** Lincoln, Prairie Airways, Inc., Municipal Airport; Omaha, Prairie Airways, Inc., Municipal Airport. **NEW JERSEY:** Teterboro, Atlantic Aviation Corp., Teterboro Air Terminal. **NEW MEXICO:** Albuquerque, Cutter-Carr Flying Service, Inc., West Mesa Airport. **OHIO:** Columbus, Parks Aircraft Sales & Service, Inc., Port Columbus. **OKLAHOMA:** Oklahoma City, Southwest Aviation Service, Inc., Hangar 2, Municipal Airport; Tulsa, Tulsair Distributors, Inc., Hangar 5, Municipal Airport. **TEXAS:** Amarillo, Amarillo Aircraft, Tradewind Airport; Corpus Christi, Longhorn Aircraft Corp., 504 Driscoll Building; Dallas, J. D. Reed Co., Inc., Love Field; Dallas, Southwest Airmotive, Love Field; Houston, J. D. Reed Co., Inc., Municipal Airport; Longview, G. E. Penn, Gregg County Airport; San Antonio, Longhorn Aircraft Corp., Stinson Field. **WYOMING:** Casper, Casper Air Service, Wardwell Field.

• • PARKS AIRCRAFT SALES & SERVICE, INC. • •
Port Columbus — **COLUMBUS, OHIO**
Municipal Airport — **KANSAS CITY, MO.**
Palwaukee Airport (Wheeling, Ill.) — **CHICAGO**

ATLANTIC AVIATION SERVICE
New Castle County Airport
WILMINGTON, DELAWARE

• • SOUTHWEST AIRMOTIVE • •
Love Field — **DALLAS, TEXAS**

• • • CASPER AIR SERVICE • • •
Wardwell Field — **CASPER, WYOMING**

• • PRAIRIE AIRWAYS, INC. • •
Municipal Airport — **LINCOLN, NEBRASKA**
Municipal Airport — **OMAHA, NEBRASKA**

• • ATLANTIC AVIATION CORP. • •
Teterboro Air Terminal — **TETERBORO, N. J.**

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport — **INDIANAPOLIS, IND.**

• BUTTE AERO SALES & SERVICE, INC. •
Municipal Airport — **BUTTE, MONTANA**

for Aircraft Owners

reliability in flight service are constantly being achieved for airplane owners by our Certified Beechcraft Service Stations. We are factory-equipped and factory-trained to meet exacting reqiurements, specializing in genuine approved parts, accessories and supplies. Our service is thorough and complete, always adequate for any assignment whether large or small.

For the best in aircraft service after the sale, backed by years of aircraft know-how and aviation progress, visit the modern, efficient hangars of the Certified Beechcraft Service Stations listed on these pages.

Insist on Certified Service

AMARILLO AIRCRAFT
Tradewind Airport — AMARILLO, TEXAS

BUTLER COMPANY
Aviation Division
Municipal Airport — CHICAGO, ILL.
Drew Field — TAMPA, FLORIDA

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport
ALBUQUERQUE, NEW MEXICO

HARTE FLYING SERVICE
Municipal Airport — WICHITA, KANSAS

SOUTHWEST AVIATION SERVICE, INC.
Hangar 2, Municipal Airport
OKLAHOMA CITY, OKLA.

J. D. REED CO., INC.
Municipal Airport — HOUSTON, TEXAS
Love Field — DALLAS, TEXAS
New Orleans Airport — NEW ORLEANS, LA.

LONGHORN AIRCRAFT CORPORATION
504 Driscoll Bldg., Corpus Christi, Texas
(Branch Office) Hangar 602
Stinson Field — SAN ANTONIO, TEXAS

TULSAIR DISTRIBUTORS, INC.
Hangar 5, Municipal Airport
TULSA, OKLAHOMA

G. E. PENN
Gregg County Airport — LONGVIEW, TEXAS

A Fair Deal for Veterans

Thousands of veterans have been denied the right to learn to fly under the GI Bill of Rights on a vocational basis. The law must and can be changed—not for aviation's benefit but as a fair deal to veterans of World War II.

TWO staunch friends of civil aviation in the present Congress are Senator Pat McCarran of Nevada and Representative Olin Teague of Texas. These two gentlemen are co-sponsors of a simple piece of legislation which will clarify the intention of Congress toward the GI Flight Training Program. Their Bill appears in full on the opposite page. It needs support.

Or if you prefer, enactment of H. R. 2862, introduced by Congressman Evins of Tennessee, will save the program. It reads as follows:

"Any such eligible person desiring to take flight-training or related aviation courses in a State-approved school or institution shall have the right to use his educational entitlements under this Act for such purposes: Provided, That, with his application for such flight-training or related aviation courses, he files with the Administrator of Veterans' Affairs an affidavit that he desires such course in connection with (1) his present occupation, or (2) his contemplated future occupation, or (3) preparation for entrance into the aviation branches of the Armed Forces of the United States. Such affidavit of such eligible person so filed shall be accepted by the Administrator of Veterans affairs as conclusive of the statements therein contained."

Hardly a congressman can be found who will agree that the Veterans Administration is carrying out the will of the 80th Congress in regard to the avocational aspects of flight training which that Congress last year, through an amendment to the GI Bill of Rights, desired to curtail. Strict interpretations of the amendment have resulted in a vital death sentence for GI flight training. With complete power to determine whether or not the desired training is vocational or avocational, the great majority of VA field service offices have seen to it for all practical purposes that an act of Congress is necessary for an ordinary GI candidate for flight training to get approval.

And that's exactly what we think is going to be necessary —passage of a bill similar to the ones opposite in order to clarify what everybody thought was being clarified last year—that flight training was vocational rather than avocational and with moderate proof of vocational necessity GI's would be approved for flight training. We all know what happened. The Veterans Administration promptly began their policy of simple sabotage which decimated the program and denied thousands of veterans of World War II their well-deserved right to choose the vocational training they desired.

No one, including this publication, is trying to save the GI flight training program for the sake of aviation although we admit it's hard to take when you see little airports closing up all over the country, many of which provide the only base for aviation activities in many towns and communities. Many small business men of aviation have closed their doors because they've had the rug pulled out from under them. In good faith they invested their money, opened up shop, established flight schools which complied with the requirements of state approval agencies, all on the basis of the GI Bill of Rights and the demand from local veterans to pursue aviation either as a career or as an acquired asset to increase their income and professional or business abilities.

Proof of VA discrimination against aviation courses lies in the files of every GI flight training establishment in the nation. The proof is so overwhelming that it would be silly to dwell on it in detail. Too few congressmen know about the thousands of cases that do not show up in the "official" figures released by the VA—case after case where the veteran has given up in disgust because of the blocks thrown in his path. These thousands of cases are never mentioned. But put them with the turn-downs and those which have been sent to guidance centers for delayed action treatment and you'll get the true picture. Every veteran and every flight school should see to it that their respective congressmen and senators have a file of these actual cases. Then the GI program can be saved purely on the basis of merit by democratic principles to provide justice—not to aviation, not to flight schools, but to the veteran who has been promised certain educational benefits by the American people.

There is no use denying that the very manner in which the Veterans Administration launched the GI Bill of Rights opened the way for opportunists, rat operators, chiselers and crooks to jump into the business of providing flight training to veterans as a lucrative racket. But an agency of the Federal government, not the aviation industry, let the bars down and invited the chaos that ensued. There is no denying that many veterans signed up for flight courses who should have been learning how to plow and that many an educational allotment went down the drain because of laxity and uncontrolled operations. But this situation was permitted to thrive by the same Federal agency that has been doing its utmost to kill GI aviation education by fair means or foul.

In effect, the Veterans Administration has admitted that it is powerless to administer intelligent aviation training programs and because of its own deficiency the only other alternative is to remove the source of the trouble by killing off the patient. Hence the rough treatment the majority of veterans receive when they try to justify their desire to take flight training.

In the final analysis it all boils down to the proposition of whether or not the veteran of World War II has the native intelligence to determine whether flight training will contribute to his present or future welfare. In most cases the VA says no. The flight operators of the nation have those records.

Aviation Industry Blind to Threat

There is a moral aspect involved. Is the aviation industry going to sit idly by and admit by silent consent that aviation is an industry offering few if any opportunities to the young men of this nation and that GI flight training may as well go by the board? Such a blind and incongruous

(Continued on page 32)

A BILL

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the final sentence in the fifth paragraph under the heading "VETERANS ADMINISTRATION" in the Supplemental Independent Offices Appropriation Act, 1949, approved June 30, 1948, is amended to read as follows: "For the purpose of this proviso, education or training for the purpose of teaching a veteran to fly, or related aviation courses, which the veteran certifies are in connection with his present or contemplated business or occupation shall not be considered, or held by the Administrator to be avocational or recreational."

MR. CONGRESSMAN:

Do you want to be fair to Veterans of World War II?

If so, you will support the Bill introduced be Senator Pat McCarran of Nevada on February 14 in the Senate and in the House by Olin E. Teague, representative from Texas, February 21 (shown at the left of this page). It is designated in the Senate as S-940 and in the House by H.R. 2903.

Another acceptable Bill is H.R. 2862 by Congressman Evins of Tennessee. This Bill reads:

"Any such eligible person desiring to take flight-training or related aviation courses in a State-approved school or institution shall have the right to use his educational entitlements under this Act for such purposes: Provided, That, with his application for such flight-training or related aviation courses, he files with the Administrator of Veterans' Affairs an affidavit that he desires such course in connection with (1) his present occupation, or (2) his contemplated future occupation, or (3) preparation for entrance into the aviation branches of the Armed Forces of the United States. Such affidavit of such eligible person so filed shall be accepted by the Administrator of Veteran affairs as conclusive of the statements therein contained."

SPONSORED BY THE UNDERSIGNED:

ARKANSAS

BLYTHEVILLE FLYING SERVICE
Blytheville, Arkansas

LILLY FLYING SERVICE
Carlisle, Arkansas

SE-ARK FLYING SERVICE
Hamburg, Arkansas

BEEBE FLYING SERVICE
Hazen, Arkansas

BRADFORD AIR SERVICE
Little Rock, Arkansas

HARLAS FLIGHT SERVICE, Inc.
Malvern, Arkansas

UNITED AIR SERVICES
El Dorado — Camden

CENTRAL FLYING SERVICE
Municipal Airport, Little Rock

KENNETH STARNES AVIATION SERVICE
Municipal Airport, Little Rock

ARKANSAS AVIATION SERVICE
Operators of Grider Field, Pine Bluff

O'BAUGH FLYING SERVICE
Pocahontas

KANSAS

MAHON'S BOOT HILL FLYING SERVICE
Dodge City, Kansas

KENTUCKY

BOWLING GREEN FLYING SERVICE
Bowling Green, Kentucky

CUMBERLAND VALLEY FLYING SERVICE
Cumberland, Kentucky

AYER FLYING SERVICE
Owensboro, Kentucky

LOUISIANA

LOUISIANA FLYERS, Inc.
Lake Charles, La.

STUCKEY'S FLYING SERVICE
Ruston, La.

ALEXANDRIA FLYING SERVICE
Municipal Airport, Alexandria

HAIR FLYING SERVICE
Harding Field, Baton Rouge

LOUISIANA AIRCRAFT
Municipal Airport, Baton Rouge

AVIATION SERVICES, Inc.
Municipal Airport, Bogalusa

ZIGLER FLYING SERVICE, Inc.
Jennings — Lafayette

NORTHEAST AVIATION SERVICE, Inc.
Selman Field, Monroe

RAYMOND E. BREAZEALE, Inc.
Natchitoches

DICKERSON'S FLYING SCHOOL
Riverside Airport, Shreveport

MASSACHUSETTS

CARLETON-WHITNEY AERO SERVICE, Inc.
North Attleboro, Mass.

MINNESOTA

AMERICAN AVIATION, Inc.
University of Minnesota Airport
New Brighton, Minnesota

MISSOURI

BRAYTON FLYING SERVICE, Inc.
Lambert Field, St. Louis

NEW JERSEY

AERO FLYING SERVICE, Inc.
Lincoln Airport, New Jersey

RED BANK AIRPORT, Inc.
Red Bank, New Jersey

NEW MEXICO

BOYD AERO SERVICE
Santa Fe, New Mexico

OKLAHOMA

CHICKASHA FLYING SERVICE
Municipal Airport, Chickasha

SELLMEYER FLYING SERVICE
Brown Airport, Tulsa
Eaker Field, Durant

KEITH KAHLE AVIATION, Inc.
Municipal Airport, Oklahoma City

SPARTAN SCHOOL OF AERONAUTICS
Municipal Airport, Tulsa

OREGON

ARMY HANGAR FLYING SERVICE
Pendleton, Oregon

PENNSYLVANIA

EBENSBURG FLYING SERVICE
Ebensburg, Pennsylvania

RHODE ISLAND

HOWARD AVIATION, Inc.
Westerly, Rhode Island

SOUTH DAKOTA

DAKOTA AVIATION COMPANY
Huron, South Dakota

TEXAS

MANGUM FLYING SERVICE
Bay City, Texas

TEXAS AERONAUTICS COMPANY
Beaumont, Texas

BRECKENRIDGE FLYING SERVICE
Breckenridge, Texas

SOUTHMOST AVIATION, Inc.
Brownsville, Texas

AMBERSON AIRCRAFT
c/o Bexar County Airport
San Antonio, Texas

ZIM-TIM SKY RANCH
Victoria, Texas

GILCHRIST FLYING SERVICE
Wichita Falls, Texas

LUCAS FLYING SCHOOLS
Lucas Fields, Arlington & Handley

PULLEY FLYING SERVICE
Pulley Airport, Arlington

OSBORNE AVIATION CORP.
Gainesville

GREENVILLE MAJORS FLYING SCHOOL
Majors Field, Greenville

HOLLIS FLYING SERVICE
Henderson

KILGORE FLYING SERVICE, Inc.
Box 230, Kilgore

TEXOMA AVIATION CO., Inc.
Sherman — Denison — McKinney

UNITED AERONAUTICS, Inc.
Municipal Airport, Mineral Wells

Dallas

DALLAS-IRVING FLYING SCHOOL
Irving Airport

PARK CITIES AERO SERVICE
Highland Park Airport

RUBYE THOMPSON AVIATION SERVICE
Second Avenue Airport

SKYLINE AIRPORT OPERATIONS
Old Lou Foote Airport

TEXAIR AVIATION, Inc.
Red Bird Airport

WEATHERLY-CAMPBELL AIRCRAFT
Highland Park Airport

WHITE ROCK AVIATION SCHOOL, Inc.
White Rock Airport

Fort Worth

AMERICAN FLYERS
Municipal Airport

RITCHEY FLYING SERVICE
Municipal Airport

JACK ROBINSON FLYING SCHOOL
Municipal Airport

RUSSELL FLYING SCHOOL
Russell Field, Highway 81

SIMPSON FLYING SCHOOL
Municipal Airport

SOUTHWEST COLLEGE OF AERONAUTICS
Municipal Airport

T. C. U. AIRPORT
Box 194, T. C. U. Station

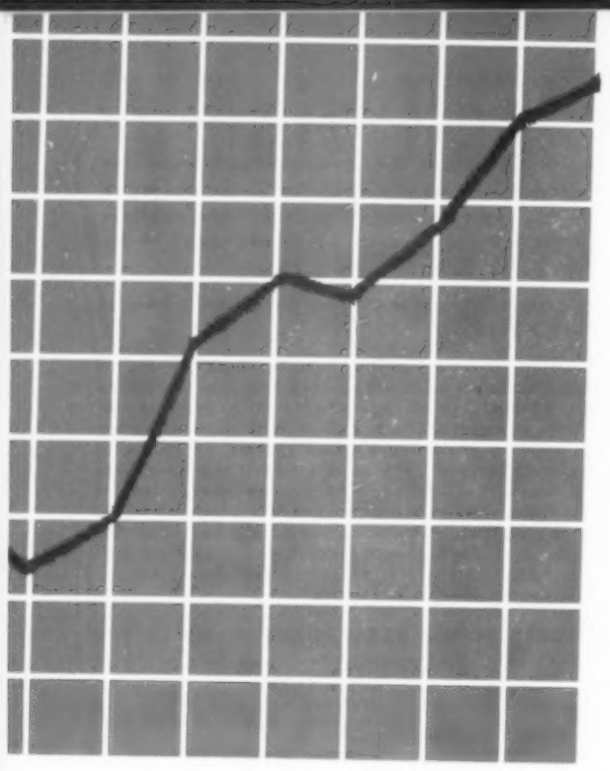
AERO ENTERPRISES, Inc.
Municipal Airport

WASHINGTON

EVERGREEN AIRWAYS, Inc.
Hoquiam, Washington

WISCONSIN

ANDERSON AIR ACTIVITIES
General Mitchell Field
Milwaukee, Wisconsin



BUSINESS IS *Good* AT AIR ASSOCIATES

. . . And we take this opportunity to thank our many friends and customers, both old and new, who have contributed to our success.

Our business, by the way, is manufacturing and distributing all kinds of aviation supplies. We've been at it since 1927. Four strategically located warehouses throughout the United States —Teterboro, New Jersey; Chicago, Illinois; Los Angeles, California, and Dallas, Texas—are ready and fully equipped to serve your needs.

AIR ASSOCIATES INC.

AIR ASSOCIATES

INCORPORATED

3200 LOVE FIELD DRIVE DALLAS 9, TEXAS

CHICAGO, ILL. · LOS ANGELES, CALIF. DIXON 4-2611 TETERBORO, N. J.

FLIGHT TESTED PRIZE-WINNING...

Sky Ranger TRADE MARK

Aviation Oil

PREMIER OIL REFG. CO. TEX.

Refineries: Longview, Fort Worth, Baird, Arp, Texas Cotton Valley, La.

A FAIR DEAL FOR VETERANS

(Continued from page 28)

attitude may not look too dangerous on the surface at this time but if it prevails and the value of flight training as assessed by Veterans Administration people is permitted to hold sway, the real damage will come not so much from the money losses of thousands of small aviation business men and little airports, but way down the line and in the future when the idea will have become imbedded that all aviation training is little better than an idle hobby. The unsuspecting enemies of the GI program within our own ranks are as dangerous as those bureaucrats who are out to kill it by positive action.

The GI flight training program can be saved. But it cannot be saved on any appeal for what it can do for aviation. It must be saved purely on the basis of fairness and justice to the veteran who is now being denied his legal rights under the law of the land by extra-legal interpretations of Federal employes.

The place to save it is in the present session of Congress. But it won't be saved unless flight schools, aviation organizations, individual veterans who've been kicked around and veteran organizations join hands to force through a clarification of the present law. A little time and effort on YOUR part will get the job done.

Just what does the Veterans Administration have to say about all of the complaints that must be pouring in to Congressmen from GI's who have been discriminated against? Well, we recently attended a protest meeting where a score or more of GI's recounted their sad experiences. They passed a strongly-worded resolution and asked us to follow through on it.

Here's the main body of a letter written to our congressman by one of the principal VA officials:

VETERANS ADMINISTRATION
Washington 25, D. C.
January 27, 1949

"The substance of the resolution submitted by Mr. Haddaway is, chiefly, that the Veterans Administration is not administering the provisions of this legislation in accordance with its intent and purpose and that procedure is being followed by the various offices and officals of the Veterans Administration which is detrimental to the veteran, not only by discouraging him from seeking flight training, but also by making it practically impossible for him to obtain such training under present legislation.

"So far as flight training is concerned, Public Law 862, 80th Congress provides:

> 'For the purpose of this proviso, education or training for the purpose of teaching a veteran to fly or related aviation courses in connection with his present or contemplated business or occupation shall not be considered avocational or recreational.'

"It is the position of the Veterans Administration that the policies announced for administration of the legislation are in exact accord with the purpose and intent thereof. The Committee Report on the Bill which was later enacted into Public Law 862, 80th Congress, manifested rather definitely the intent and purpose of the Act, since it was stated:

> 'The language as finally agreed upon is intended to permit all training which will contribute to bona fide use in the veteran's present or future business or employment.'

"In view of the matters presented, it is believed appropriate to quote for your information the expressions of the Administrator of Veterans Affairs in response to somewhat similar representations upon the part of a national organization of ex-servicemen. The Administrator said:

> 'I wish to say first that the instructions which I have issued for the administration of Public Law 862 of the 80th Congress are in entire accord with the spirit and intent of the law as I understand it. I do not agree with you that there has been any maladministration of this legislation under effective instructions nor do I admit any evasion of the intent and purpose of the law. I will advise you, therefore, that it is not my intention to rescind Veterans Administration Instruction No. 1, Public Law No. 862, 80th Congress.
>
> 'I have stated heretofore that the law is clear in prohibiting the expenditure of Veterans Administration appropriations for any course commenced on or after July 1, 1948, which is determined by the Veterans Administration to be avocational or recreational in character. So far as the law affects flight training it says, "For the purpose of this proviso, education or training for the purpose of teaching a veteran to fly or related aviation courses in connection with his present or contemplated business or occupation, shall not be considered avocational or recreational." The reverse of this must be true, that is, if the course is not to be used in connection with the present or contemplated business or occupation, it shall be considered to be avocational or recreational.'

"In the matter of the procedures being followed by responsible personnel of the Veterans Administration which are alleged as being detrimental to the veteran not only by discouraging him from seeking flight training but also by making it practically impossible for him to obtain training under present legislation, I will take this opportunity to deny categorically the assertions contained in the resolution submitted by Mr. Haddaway. It has been emphasized repeatedly that the field offices of the Veterans Administration are to deal with each case on its own merits and under no circumstances should the approach to any case be other than that which gives fair, thorough consideration to all the facts, bearing in mind of course that the law does not permit a veteran to pursue a course for avocational or recreational purposes. I wish also to take this opportunity to assure you that bias or prejudice upon the part of responsible personnel of the Veterans Administration toward flight training, or any other categories of training, will not be countenanced. There has never been any such attitude upon the part of the Veterans Administration."

That's the VA's official attitude. It's plain and simple. The only road left open to give the GI seeking flight training a fair deal is to change the law. The time to get on with the job is NOW!—G. H.

Flight Parties . . . **This year plan to get more usefulness from your airplane in business and social activities. You can do both at the friendly Flying L Ranch. Wherever you are, the Flying L is only hours away in your plane, awaiting your arrival with superb facilities and service. Everything as you want it . . . hard-surfaced runways . . . service to earn your satisfaction and confidence . . . distinctive, cozy-comfort guest suites just across the turf . . . swimming pool . . . horseback riding . . . fishing in stocked lakes . . . hunting . . . appetizing food around the clock . . . night-time fun-fare.**

¶ Make your flight plans now — next trip visit the Flying L Ranch, 32 miles West of San Antonio at Bandera.

Col. and Mrs. Jack Lapham, Owners

CHANGING PATTERN

(*Continued from page 22*)

we must. In the field of the airplane, time and continuity are everything — without these two vital elements there can be no security. Without a national aviation built on these foundations, we are, for the first time in our history, open to direct attack on our military establishments, our cities, factories and transportation. *This criterion of defense has never before existed.*

The airplane of World War I was a relatively simple affair, with limited range and offensive ability. With the advent of World War II it became a more complex instrument to be fitted into our strategy. Its range had been increased to a degree that it could be wielded against Germany from England, and against Japan from island bases brought under control through the use of naval aviation. It had not reached intercontinental proportions, but at the end of the war the planes necessary for intercontinental warfare were on the drawing boards, and missiles of ranges approaching that were under development.

Storage Planes Obsolete

The country at that time reached a point at which it becomes possible to demobilize armies, within reason; to lay up a surface fleet, in mothballs, again within reason; but at which *it becomes suicidal to strip our air defense*, to disperse aircraft production teams and shut down the factories needed to supply the Air Force and the naval air arm with the planes they require. Planes now in mothballs are 200 mph. behind the times; their range is thousands of miles short of today's strategies; their electronics may be compared to a 25-watt bulb in a ball park during a night game. Some day this condition may change. But today it is only too true, and unless there is a continuity of design and production and operational testing we may soon wake up to the fact that we have gambled away the one element we can no longer recover from history—*time*.

Time has also been important to the airlines. For three years the airlines were permitted to lose vast sums of money. Much of their salvation the airlines have worked out for themselves, and there is recognition now that partial responsibility for this financial debacle rests with the government. Yet, in the meantime, the effects of this disregard of the time factor have spread through other facets of aviation, and transport planes that could have been in service in the airlines, providing more efficient service at lower per passenger cost, remain unbuilt in the factories.

Definite and significant changes have come about in the field of personal flying during the years since 1935. At that time there were 2,368 landing fields in the United States; in 1949 the total nears 6,500. In 1935 we had a total of 14,069 commercial and private pilot licenses; to date the total is close to half a million. Personal plane registration on December 31, 1935, totaled 8,613; the 1949 total hovers on the edge of the one hundred thousand mark. Whereas in 1935 personal flying was still tinged largely by the barn-storming type of operations, today we find personal aircraft an accepted tool of agriculture and industry, in both of which fields its utility, economy and efficiency are winning new users in ever increasing numbers. The lightplane proved its usefulness militarily during the war when thousands of so-called "grasshoppers" served effectively in all theaters of operation. There is every reason to believe that the use of "off-the-shelf" personal aircraft by the military will constitute an increasingly important outlet for our manufacturers.

All in all the personal plane industry has successfully weathered the high and low spots of postwar development and now seems based on a firm foundation upon which to build a permanent and increasingly important self-sufficient industry. ★ ★ ★

Exports of Aeronautic Products

Year	Aircraft No.	Aircraft Value (Millions)	Engines No.	Engines Value (Millions)	Parts and Accessories (Millions)	Parachutes and Parts (Thousands)	Total Value (Millions)
1934	490	$ 8.1	1,009	$ 4.4	$ 4.8	$ 148	$ 17.6
1935	333	6.5	568	2.4	5.0	163	14.2
1936	527	11.6	933	5.1	6.0	298	23.1
1937	631	21.0	1,048	5.9	12.1	257	39.4
1938	876	37.9	1,309	7.8	21.9	400	68.2
1939	1,221	67.1	1,880	14.1	35.7	775	117.8
1940	3,531	196.2	4,986	49.8	64.6	1,068	311.8
1941	6,011	422.7	8,144	81.6	121.7	715	626.9
1942	10,500	884.7	14,603	160.5	311.5	466	1,357.3
1943	13,897	1,217.0	21,803	243.6	680.1	1,814	2,142.6
1944	24,405	1,646.1	25,751	335.0	830.2	6,701	2,818.1
1945	7,290	650.1	9,351	126.2	427.2	1,264	1,204.8
1946	2,406	65.2	2,490	11.8	37.3	784	115.3
1947	3,208	74.5	4,138	18.0	72.0	10,941	175.5
1948	2,262	66.3	3,932	14.3	70.4	.....	156.8

AN Drawing No.	Inches ID	OD	Price Per 100
AN931-2-16	1/8	1-1/4	$4.50
AN931-3-5	3/16	7/16	2.57
AN931-4-7	1/4	5/8	2.78
AN931-5-9	5/16	13/16	3.29
AN931-6-10	3/8	7/8	3.97
AN931-7-11	7/16	15/16	3.63
AN931-8-20	1/2	1-1/2	5.62
AN931-10-20	5/8	1-1/2	5.53
AN931-11-16	11/16	1-5/16	4.97
AN931-12-20	3/4	1-5/8	6.36
AN931-14-20	7/8	1-5/8	7.50
AN931-16-22	1	1-3/4	7.43
AN931-24-28	1-1/2	2-1/8	8.39

Write for complete price list on AN 930, AN 931 and other Grommets . . . also all type mechanical rubber products.

PNEUMATIC TOOL HOSE

Smooth Bore — uniform tube diameter. Seamless reinforced horizontal braided, 2 braid, light weight, flexible, non-kinking, oil resistant.

3/8" I. D. - - 16c per ft.

All type hose and hose accessories.

CLEAR VINYL TUBING

Per 100 ft.

Size	Dia.	Price
#9	.118"	1.45
#8	.133"	1.64
#7	.148"	1.84
#6	.166"	1.93
#5	.186"	1.95
#4	.208"	2.35
1/4"	.250"	2.87

Per 100 Ft.

Size	Dia.	Price
#1	.294"	3.34
5/16"	.312"	3.49
3/8"	.375"	4.12
1/2"	.500"	5.55
5/8"	.625"	7.94
3/4"	.750"	12.38
1"	1.000"	15.48

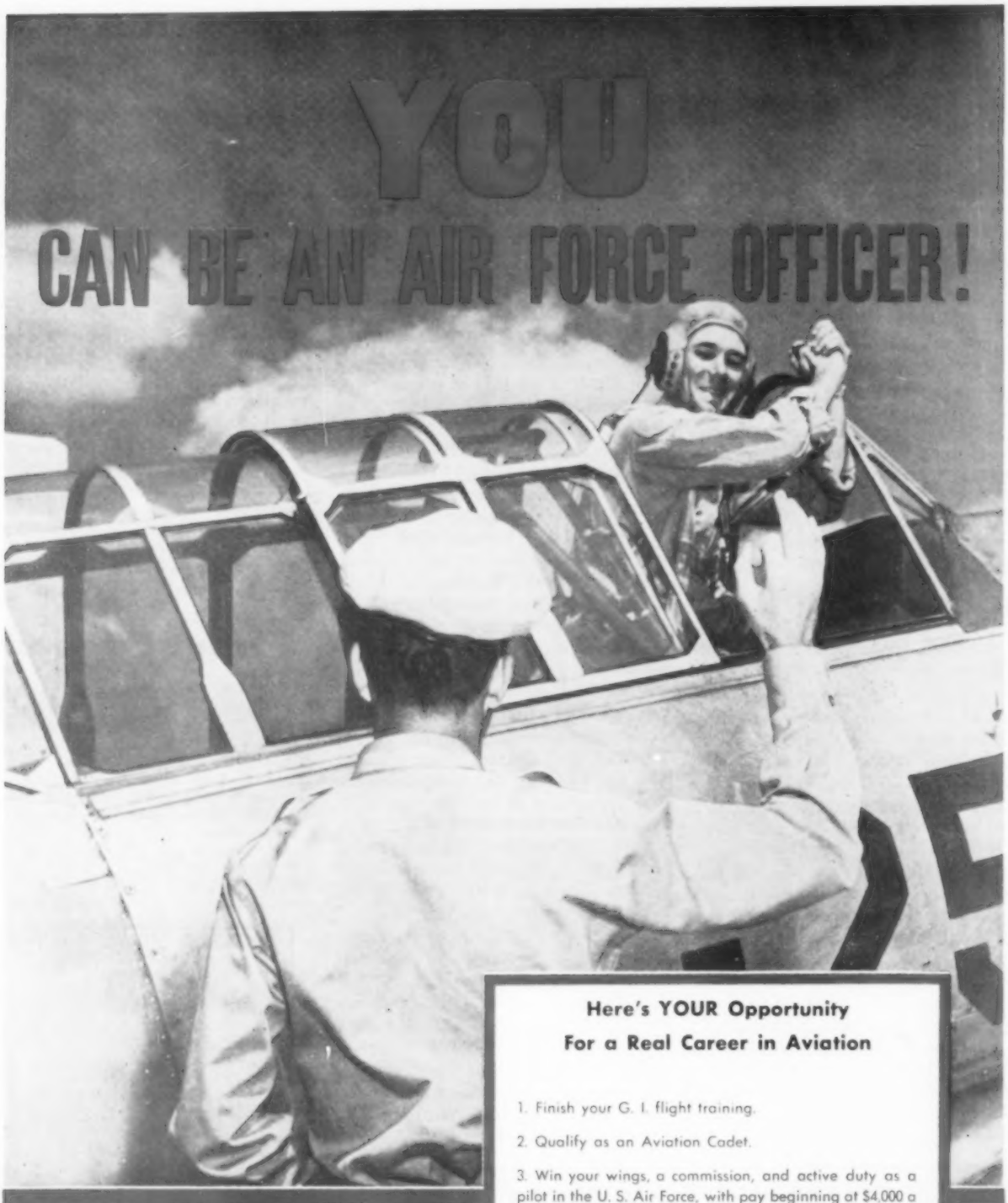
500 FT. OR MORE—10% DISCOUNT—LIBERAL LARGE QUANTITY DISCOUNT

A PLASTIC TUBING USED FOR PROTECTING WIRE, DECORATIVE PURPOSES, WATER OR OTHER FLUID HOSE. CAPABLE OF INSULATING UP TO 5000 VOLTS —ORDERS FILLED IMMEDIATELY FOR ANY LENGTHS. ASK FOR PRICES ON COLORED.

SPECIAL DISCOUNTS TO DISTRIBUTORS AND DEALERS

Specialist in Aircraft & Plastic Rubber and Products
AIR ACCESSORIES
AIR ACCESSORIES
AIRCRAFT MATERIAL CENTER
AIR ACCESSORIES, INC. BOX 1440
1400 HENDERSON FORT WORTH 1, TEXAS

This U. S. Air Force poster is reproduced as a public service by the progressive authorized GI flight schools listed on the opposite page.



Here's YOUR Opportunity
For a Real Career in Aviation

1. Finish your G. I. flight training.
2. Qualify as an Aviation Cadet.
3. Win your wings, a commission, and active duty as a pilot in the U. S. Air Force, with pay beginning at $4,000 a year. **All this in one year.**

For men with two years of college, or who can pass an equivalent examination. Between ages of 20 and 26½. Single or married male citizen. High physical and moral qualifications.

For details, visit your nearest Air Force Base or U. S. Army and U. S. Air Force Recruiting Station, or write to: Chief of Staff, Headquarters, U. S. Air Force, Attention: Aviation Cadet Branch, Washington 25, D. C.

Win Your Wings

U. S. AIR FORCE

ONLY THE BEST CAN BE AVIATION CADETS

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
UNITED STATES AIR FORCE
Washington, D. C.

Managers,
G. I. Flight Schools,
U. S. A.

Dear Sirs:

It has come to my attention that there is a belief among veteran flight trainees that they are not eligible for Aviation Cadet training.

The Air Force would welcome applications for Aviation Cadet training from graduates of your school. The military background of these men, together with their interest in a flying education, makes them ideal candidates for Aviation Cadet pilot training and subsequently for Regular or Reserve commissions in the Air Force.

It would be appreciated if you would display the inclosed posters on your bulletin board or post them in some conspicuous place so that your students may know that their applications for Aviation Cadet training are desired.

Very truly yours,
/s/ IDWAL H. EDWARDS
Lieut. General, USAF
Deputy Chief of Staff,
Personnel

AUTHORIZED GI FLIGHT TRAINING SCHOOLS

ARKANSAS

UNITED AIR SERVICES
El Dorado — Camden

CENTRAL FLYING SERVICE
Municipal Airport, Little Rock

KENNETH STARNES AVIATION SERVICE
Municipal Airport, Little Rock

ARKANSAS AVIATION SERVICE
Operators of Grider Field, Pine Bluff

O'BAUGH FLYING SERVICE
Pocahontas

LOUISIANA

ALEXANDRIA FLYING SERVICE
Municipal Airport, Alexandria

HAIR FLYING SERVICE
Harding Field, Baton Rouge

LOUISIANA AIRCRAFT
Municipal Airport, Baton Rouge

AVIATION SERVICES, INC.
Municipal Airport, Bogalusa

ZIGLER FLYING SERVICE, INC.
Jennings — Lafayette

NORTHEAST AVIATION SERVICE, INC.
Selman Field, Monroe

RAYMOND E. BREAZEALE, INC.
Natchitoches

DICKERSON'S FLYING SCHOOL
Riverside Airport, Shreveport

MISSOURI

BRAYTON FLYING SERVICE, INC.
Lambert Field, St. Louis

OKLAHOMA

CHICKASHA FLYING SERVICE
Municipal Airport, Chickasha

SELLMEYER FLYING SERVICE
Brown Airport, Tulsa Eaker Field, Durant

KEITH KAHLE AVIATION, INC.
Municipal Airport, Oklahoma City

SPARTAN SCHOOL OF AERONAUTICS
Municipal Airport, Tulsa

TEXAS

LUCAS FLYING SCHOOLS
Lucas Fields, Arlington & Handley

PULLEY FLYING SERVICE
Pulley Airport, Arlington

OSBORNE AVIATION CORP.
Gainesville

GREENVILLE MAJORS FLYING SCHOOL
Majors Field, Greenville

HOLLIS FLYING SERVICE
Henderson

KILGORE FLYING SERVICE, INC.
Box 230, Kilgore

TEXOMA AVIATION CO., INC.
Sherman — Denison — McKinney

UNITED AERONAUTICS, INC.
Municipal Airport, Mineral Wells

Dallas

DALLAS-IRVING FLYING SCHOOL
Irving Airport

PARK CITIES AERO SERVICE
Highland Park Airport

RUBYE THOMPSON AVIATION SERVICE
Second Avenue Airport

SKYLINE AIRPORT OPERATIONS
Old Lou Foote Airport

TEXAIR AVIATION, INC.
Red Bird Airport

WEATHERLY-CAMPBELL AIRCRAFT
Highland Park Airport

WHITE ROCK AVIATION SCHOOL, INC.
White Rock Airport

Fort Worth

AMERICAN FLYERS
Municipal Airport

RITCHEY FLYING SERVICE
Municipal Airport

JACK ROBINSON FLYING SCHOOL
Municipal Airport

RUSSELL FLYING SCHOOL
Russell Field, Highway 81

SIMPSON FLYING SCHOOL
Municipal Airport

SOUTHWEST COLLEGE OF AERONAUTICS
Municipal Airport

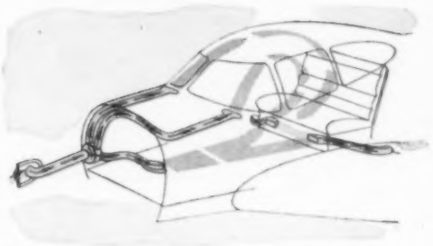
T. C. U. AIRPORT
Box 194, T. C. U. Station

The U. S. Air Force poster on the opposite page is reproduced as a public service by the progressive authorized GI Flight Schools listed above.

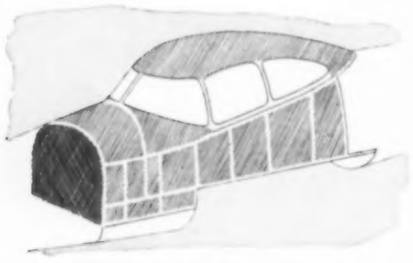
ONLY THE GREAT NEW NAVION FOR '49 GIVES YOU ALL THESE ADVANCEMENTS

STILL HIGHER PERFORMANCE. New landing gear doors and fairings combine with more powerful 205 h.p. engine to deliver cruising speeds up to 155 m.p.h. Normal take-offs in 560-ft.; only 875-ft. needed to clear a 50-ft. obstacle, both on take-off and landing. New *Navion* climbs 900-ft., 1st minute, fully loaded.

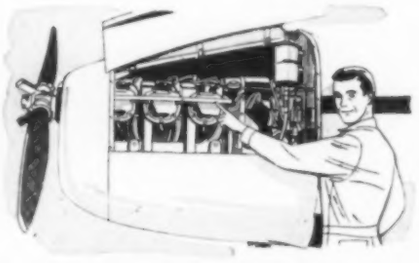
STILL MORE ROOM. Head and leg room to spare for four big people! Rear seat is 6-in. wider, and features new limousine-type folding center arm rest. Seat back tilts forward for easy in-flight access to luggage. With new optional *under seat* auxiliary tank, entire luggage compartment can be used.



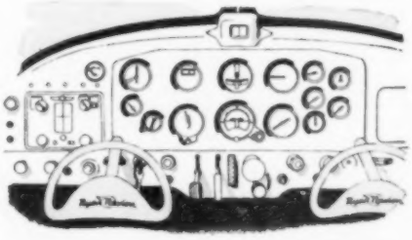
STILL GREATER COMFORT. New ventilating-heating system channels more fresh or warm air to every corner of the cabin. Softer, thicker foam rubber cushions, and high head rest in rear seat... tastefully upholstered in modern fabrics and trimmed with leather at wear points. Front seats adjust to individual requirements.



STILL QUIETER. A new, thicker blanket of insulation shuts out noise and heat. Engine exhaust is muffled and discharged under wing. Thicker Plexiglas windshields reduce noise, and new windows filter sunburn rays. Low noise level in *Ryan Navion* for '49 sets a new standard in restful flying comfort.



PROVEN MECHANICAL REFINEMENTS. Exclusive dual fuel system with independently operated engine-driven fuel pump and standby electric pump classes new *Navion* with *most modern* air liners for dependable fuel supply. New VHF radio is now standard equipment, Four new corrosion-proof enamel finishes.



IMPROVED CONTROL AND INSTRUMENT PANELS and more instruments... Manifold pressure, rate-of-climb indicator, outside temperature and dampened fuel gauges now included. Panel lights can be dimmed. Control knobs simulate mechanism they activate for positive identification. New key-ignition.

FLY THE NEW *NAVION* NOW! For demonstration, free business trip or colorful illustrated brochure giving you complete details on all 29 dramatic advancements in the new *Ryan Navion* for '49... See your *Navion* dealer or write Ryan Aeronautical Company, San Diego. There is no obligation.

NO OTHER PLANE COMBINES SO MANY FEATURES SO WELL

Ryan Navion

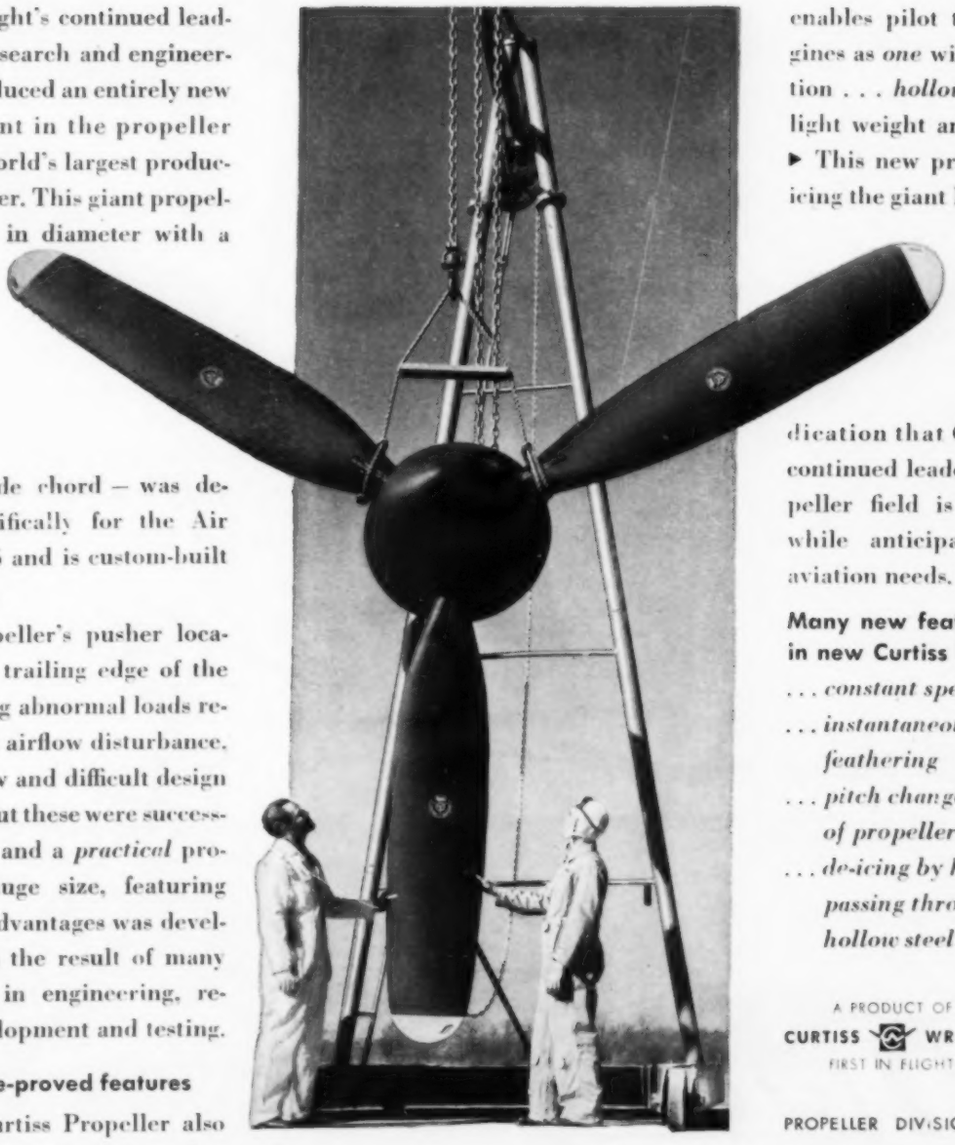
Rely on Ryan RYAN AERONAUTICAL COMPANY, 604 LINDBERGH FIELD, SAN DIEGO 12, CALIFORNIA

ANNOUNCING WORLD'S LARGEST PRODUCTION PROPELLER

"Custom-Built" BY Curtiss-Wright

FOR THE B-36

Curtiss-Wright's continued leadership in research and engineering has produced an entirely new development in the propeller field—the world's largest production propeller. This giant propeller—19 feet in diameter with a 21-inch blade chord – was designed specifically for the Air Force's B-36 and is custom-built throughout.



▸ This propeller's pusher location on the trailing edge of the wing, causing abnormal loads resulting from airflow disturbance, involved new and difficult design problems. But these were successfully solved and a *practical* propeller of huge size, featuring many new advantages was developed . . . as the result of many man hours in engineering, research, development and testing.

Many service-proved features

The new Curtiss Propeller also provides *reverse* thrust for smooth, air-cushioned landing and more effective braking . . . *automatic synchronization* which enables pilot to control *six* engines as *one* with single-lever action . . . *hollow steel blades* for light weight and extra strength.

▸ This new propeller now servicing the giant B-36 is another indication that Curtiss-Wright's continued leadership in the propeller field is meeting *today's* while anticipating *tomorrow's* aviation needs.

Many new features included in new Curtiss Propeller

- . . . *constant speed in reverse*
- . . . *instantaneous reversing and feathering*
- . . . *pitch change from rotation of propeller*
- . . . *de-icing by heated air passing through hub and hollow steel blade*

A PRODUCT OF
CURTISS WRIGHT
FIRST IN FLIGHT

PROPELLER DIVISION, CALDWELL, N. J.

CURTISS ELECTRIC PROPELLERS

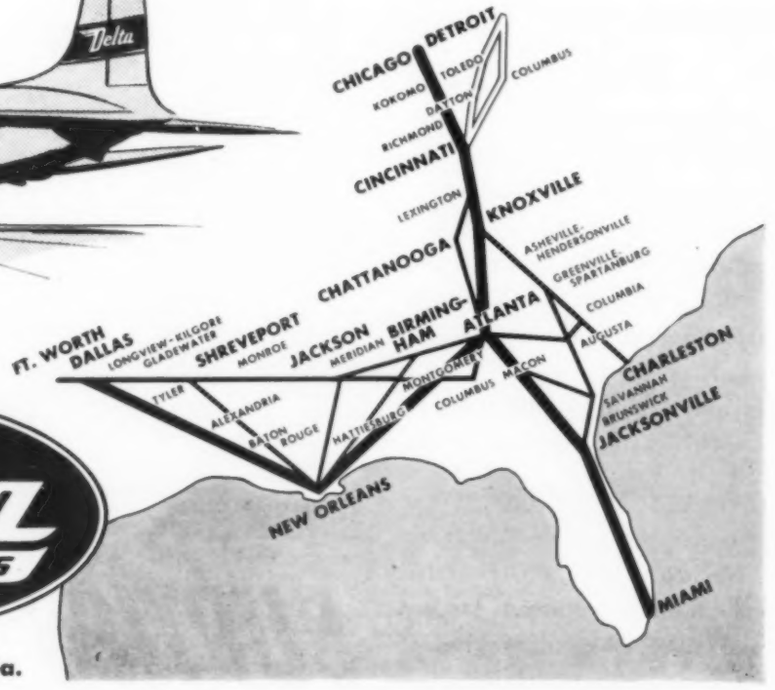
NONE FASTER - NONE FINER...

to and through the South....

You've been missing something if you haven't flown in a DC-6 Deltaliner. Queen of the Southern skies, the Delta DC-6 is definitely the finest and most modern airliner in service.

Addition of DC-6's to Delta's fleet serving 36 Southern cities is another step forward in the plan followed for the past 20 years: faster and finer air service for all the South.

5% Discount on Round Trips
Saves You 10% on Return Portion

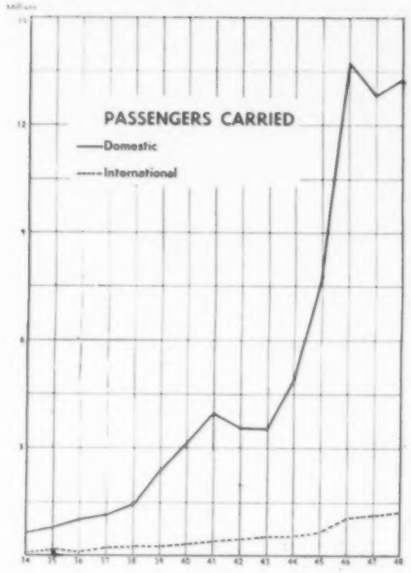


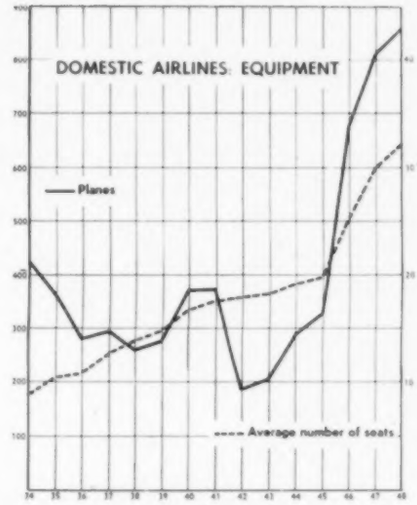
Delta AIR LINES

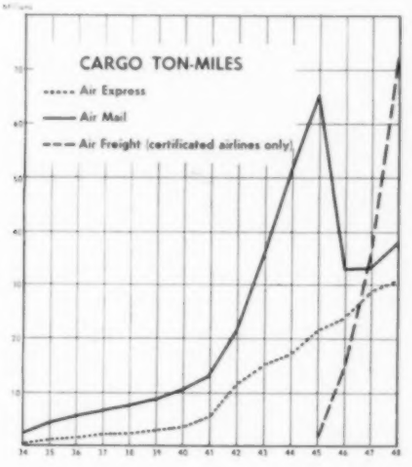
General Offices: Atlanta, Ga.

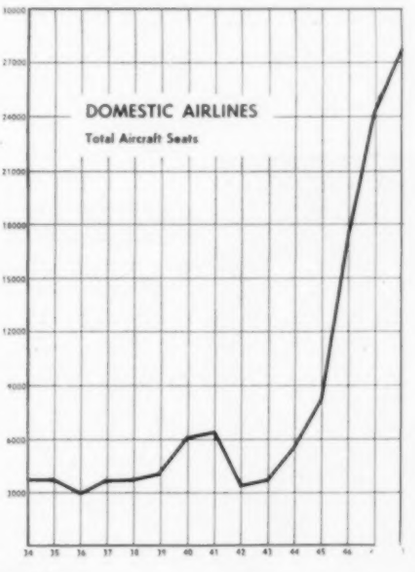
Progress in Air Transportation

Re-shuffling of routes and operators imminent on eve of new era









THE history of U. S. scheduled air transportation can be divided into three distinct eras of development, the first era beginning with the early air mail experiments and running up to the first definite air mail legislation in 1925. The second period was the extension of air mail service and the beginning of limited passenger services and route developments through 1934 when the New Deal cancelled the air mail contracts. The third period, one of fifteen dynamic years and just now ending is the period when scheduled air transportation came into its own following the re-shuffling of routes, contracts and operators in 1934 to the present time. It is to this latter period that our facts and figures apply.

That we are now at the end of another era and the beginning of a new one is plainly evident. The Civil Aeronautics Board, under whose strict supervision the air transport industry must operate, has made it clear there's a new "New Deal" in the making, that the domestic air route pattern is to be re-shuffled once again with elimination of uneconomic operations, some mergers and a complete overhaul of air mail pay following studies of what constitutes a fair rate of pay and what constitutes subsidy.

"This does not mean," states the Chairman of the Civil Aeronautics Board, "That we must take a meat-ax approach to the problem of subsidy and throw the industry into the kind of turmoil in which it found

Airline Revenues and Costs

(DOMESTIC AIRLINES)

	Total (Millions)	Operating Revenues Passenger % of Total	Mail % of Total	Express & Frt. % of Total	Other Revenue % of Total	*Operating Expenses Total (Millions)
1938 - - -	42.9	57.9	37.0	3.0	2.1	43.8
1939 - - -	55.9	62.3	33.0	2.9	1.8	51.3
1940 - - -	76.8	69.4	26.1	2.7	1.8	70.8
1941 - - -	97.3	71.7	23.3	3.0	2.0	89.9
1942 - - -	108.2	69.1	21.7	6.4	2.8	84.3
1943 - - -	123.1	71.0	19.7	6.8	2.5	95.5
1944 - - -	160.9	72.3	20.7	5.2	1.8	124.5
1945 - - -	214.7	77.5	15.7	5.0	1.8	180.6
1946 - - -	316.2	87.2	6.6	4.3	1.9	322.2
1947 - - -	364.8	84.6	8.1	5.3	2.0	386.1
1948 - - -	416.4	80.8	11.6	5.8	1.8	425.6
International U. S. Airlines						
1948 - - -	232.9	63.1	23.5	8.9	4.5	——

*Includes flying operations, direct maintenance flight equipment, depreciation flight equipment, ground and indirect expenses.

Airline Personnel

(DOMESTIC AIRLINES)

	Total All Personnel	Pilots and Co-Pilots	Mechanics	Passengers Per Employe	Revenue Ton Miles Per Employe
1934 - - -	4,201	667	1,650	113	NA
1935 - - -	5,945	874	2,016	128	NA
1936 - - -	7,079	1,055	2,164	147	NA
1937 - - -	7,586	1,064	2,228	149	NA
1938 - - -	9,008	1,135	2,436	151	6,451
1939 - - -	10,639	1,412	2,822	178	7,542
1940 - - -	15,984	1,934	4,054	192	7,699
1941 - - -	19,223	2,217	4,423	215	8,180
1942 - - -	26,910	2,194	9,348	132	6,581
1943 - - -	29,654	2,125	8,271	117	7,394
1944 - - -	31,198	2,879	7,136	152	9,291
1945 - - -	50,313	4,967	10,844	152	8,506
1946 - - -	69,182	5,712	16,107	198	9,462
1947 - - -	58,998	5,030	15,372	218	11,742
1948 - - -	61,279	4,710	14,894	215	11,866

NOTE: International U. S. Airline personnel in 1934 totaled 2,276 including 92 pilots and co-pilots and 558 mechanics. In 1948 these reached 21,517 total personnel including 1,536 pilots and co-pilots and 4,619 mechanics.

Number Airline Planes, Seats, Passengers, Route Miles

(WITH AVERAGE SEATS AVAILABLE AND FARES PER MILE)
(DOMESTIC AIRLINES)

	Number Planes	Number Seats	Average Seats Available	Number Passengers (Millions)	Route Miles(A) (Thousands)	Av. Fare Per Mile (Cents)
1934	423	3,748	8.86	0.47	NA	5.9
1935	363	3,750	10.33	0.76	NA	5.7
1936	280	2,988	10.67	1.04	NA	5.7
1937	291	3,643	12.52	1.13	NA	5.6
1938	260	3,617	13.91	1.36	39.2	5.2
1939	276	4,046	14.66	1.89	39.7	5.1
1940	369	6,103	16.54	3.03	44.6	5.1
1941	370	6,490	17.54	4.14	46.4	5.0
1942	186	3,331	17.91	3.55	49.2	5.3
1943	204	3,741	18.34	3.48	54.5	5.3
1944	288	5,486	19.05	4.76	62.9	5.4
1945	421	8,285	19.68	7.60	66.4	4.5
1946	674	16,819	25.25	13.70	84.3	4.5
1947	810	24,243	29.93	12.89(C)	110.7	5.0
1948	862(B)	27,670	32,10	13.22	139.0(D)	5.6

NOTE: (A) Includes duplication of routes. (B) Includes 293 aircraft listed on both domestic and foreign certificates. (C) Revenue passengers only; earlier figures include revenue and non-revenue. (D) U. S. overseas (6,176 miles) and international (172,117 miles) route mileage totals 178,293 miles.

Air Mail Express and Freight

(DOMESTIC AIRLINES)

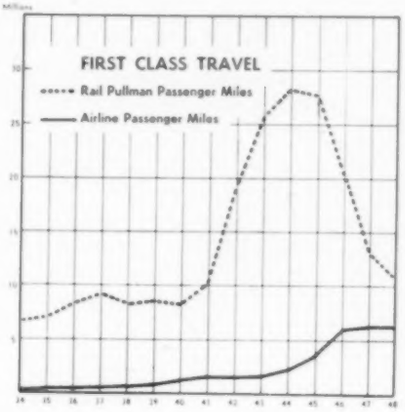
	Passenger Load Factor	Mail Pay Per Plane Mile	Av. Lbs. Mail Per Ton Mile	Mail Ton Miles (Millions)	Express Ton Miles (Millions)	Freight Ton Miles (Millions)
1934	51.61	$ .403	NA	2.4	.5	.....
1935	54.76	.284	218	4.1	1.0	.....
1936	63.97	.315	253	5.7	1.8	.....
1937	57.54	.329	319	6.6	2.1	.....
1938	58.93	.319	306	7.4	2.1	.....
1939	62.14	.326	303	8.6	2.7	.....
1940	63.72	.328	315	10.1	3.4	.....
1941	64.32	.273	295	13.1	5.2	.....
1942	76.45	.263	352	21.1	11.9	.....
1943	89.98	.262	634	36.0	15.1	.....
1944	90.77	.264	786	51.1	16.9	.....
1945	89.33	.213	723	65.0	21.7	1.4
1946	80.31	.121	395	32.9	23.7	14.8
1947	65.12	.069	203	33.0	28.7	35.9
1948	57.50	.143(A)	NA	37.8	30.1	71.6

(A) Subject to adjustment.

itself preceding the passage of the Civil Aeronautics Act of 1938. On the other hand, it does not mean that we can continue along the same lines in which we have been moving since the war, no matter how comforting to the airlines that course of action might be."

A careful study of the charts and tables on airline growth herewith appended reveal that the last fifteen years, covering that period from 1934 to the present time and including the abnormal war years when air transportation truly came of age in our national economy and in our national

(Continued on page 47)



Passengers boarding a Carco Air Service schedule at Albuquerque.

Realistic Air Service

OUR nation is justly proud of its air transport system, finest in the world. BUT far too many small cities and towns have no air service because *large, multi-engine transports cannot afford to operate into communities with small traffic volume and small airport facilities.*

THE IMMEDIATE ANSWER TO THIS DILEMMA may be found in excellent postwar light airplanes, already proven and available for scheduled air service for hundreds of communities now begging for such service.

THE PERMANENT ANSWER TO THIS DILEMMA is not difficult. It would follow automatically if the CAB would recognize the legitimate and valid commercial utility of small aircraft, and thus encourage our manufacturers to develop and offer efficient 5, 7 and 10 place twins.

HERE'S PROOF: Operating postwar four-place Bonanzas, on daily intra-state passenger schedules in New Mexico, *we of CARCO have flown more than two million passenger miles during the past two years.*

CARCO'S fleet of Bonanzas, operated with efficiency and economy, and backed by a wealth of lightplane air service experience, has earned public acceptance through safety, comfort, dependability and frequency of schedules. *CARCO has applied to the CAB for certification as a carrier—seeking through maximum utilization to develop sufficient traffic to justify further lightplane design progress to meet additional small city traffic requirements for the scheduled air service so urgently needed.*

Carco Air Service

West Mesa Airport
Albuquerque, N. M.

The New Way to Go

THROUGH THE HOUSTON AIR-GATEWAY

TO RIO

Now you can enjoy the luxury of Braniff air travel all the way to Rio de Janeiro.

The Braniff air route . . . through the Houston Air-Gateway...offers a new, direct, one-company service from the Western half of the United States to Havana; Balboa-Panama City; Guayaquil, Ecuador; Lima, Peru; La Paz, Bolivia; and Rio de Janeiro, Brazil.

The new Braniff Lima-to-Rio flight spans the heart of South America in 9½ hours. Just 26 hours and 25 minutes from the time you leave the Houston Air-Gateway you are in far-away glamorous Rio. It's a luxury flight in the de luxe DC-6 Braniff-Liner . . . a trip you will never forget.

For information on air travel anywhere in the Americas, see your travel agent or your nearest Braniff office.

BRANIFF *International* AIRWAYS

LOVE FIELD • DALLAS 9, TEXAS

AIR REPORT

(Continued from page 5)

cruise, 390 miles; range at economy cruise, 440 miles; free-air stall, power-off, 45 mph.; rate of climb, 1,090 fpm. at gross weight from sea level; absolute ceiling at gross weight, 21,300 ft.

Fairchild Trainers Ordered

Fairchild has received an order for 100 T-31 basic trainers costing $8,000,000 including component supplies to replace the T-6. Originally designed for the Navy, the T-31 has a 300-hp. Lycoming and grosses 3,750 lbs.

New Piper Dusters and Sprayers

Duster and sprayer versions of Piper Aircraft's 90-hp. PA-11 are equipped at the factory with units developed and manufactured by Art Whitaker, Oregon Cub distributor. Sprayer has 47-gal. tank carried beneath fuselage between landing gear, nozzle-equipped booms under each wing for 50-ft. swath and wind-driven high-pressure pump. Trigger on control stick regulates spray discharge. Duster has rear-seat hopper of 500-lb. capacity, wind-driven agitator and dual venturi. Both versions are priced at $3,345, fully equipped at factory.

Spray Kit for Cessnas

Yingling Aircraft, Inc., of Wichita, Kansas, has announced availability of a fully-approved spray unit in kit form for Cessna 120 and 140 models. It features 40-gal. tank, engine-driven vane-type pump, streamlined booms, whirl-jet, screened nozzles, positive shut-off valve and pressure regulator. A swath exceeding 70-ft. width from altitude of 5 feet is claimed.

25 Teams for Intercollegiate Flying Meet

The 11th Annual National Intercollegiate Flying Meet, scheduled May 6-8 at Eagle Mountain Marine Air Base north of Fort Worth, will attract flying teams from nearly 25 colleges and universities, according to Troy A. Stimson of Texas Christian University, host school. It will be the first time the national contest has ever been held in the Southwest and the largest since the end of the war. A total of 21 trophies will be presented to winners and runner-ups in navigation contests, precision landings, bomb dropping and other competitive events. Movie actor Dick Powell has agreed to act as judge in the "Sky Queen of 1949" contest between co-ed candidates for the honor nominated by the participating colleges.

FOR SALE

Luscombe 85 Model 8E DeLuxe

Total Time	**180:20**
Time Since 100 hr.	**78:50**
Time Since Top O.H.	**37:50**

Equipment: McCauley Prop,
Landing Lights — Navigation Lights
Bank & Turn — Sensitive Altimeter
Bendix VHF Transmitter — HF Receiver

Aircraft like new . . . . Always hangared
Only one owner

Sale price: Less than $2,000

Write or wire Box 12A c/o
SOUTHERN FLIGHT
P. O. Box 750, Dallas 1,
1901 McKinney Ave., Texas

No. 2 in a Series . . . (Advt.)

Radio Reviews

ISOLATION AMPLIFIERS eliminate cockpit confusion resulting from multiple receiver operation. Here's how: We install a network of resistors, through which signal losses from each receiver total as much as 90%. This filters out cross-feed from pilot and copilot. At that stage our isolation amplifiers build up the remaining pure signal for complete and isolated restoration without cross-feed.

One of our custom panels with speaker.

LOUDSPEAKERS should have a reasonably quiet cockpit, sufficient size and volume to overcome noise, amplification with adequate power for good volume without distortion and speaker disabling relay while transmitting. Meet these requirements and you can enjoy the pleasures of good cockpit speakers, which our customers often praise.

KNOW-HOW IN RADIO SELECTION, INSTALLATION AND MAINTENANCE is our specialty. Drop in to see us any time and talk radio with our communications specialists.

Dealers for

★ ARC ★ BENDIX
★ COLLINS ★ LEAR

North Texas Distributors for

Doolittle Oil Field, Railway, Taxicab Communications

Associated Radio
CARL FOX
TONY AGUILAR
LEE LANFORD
LOVE FIELD • DALLAS

MORE DEVELOPMENT

(*Continued from page* 21)

one part of this program. This is a long-range program, in that children now in school will come of age well informed on the accomplishments and capabilities of aviation.

Farm Flying Offers Most

Crop-dusting and private flying began in this country shortly after 1920. These two activities remain today, as they have been throughout the past 15 years, as the most promising of all for building up an aviation industry. Of the two, dusting, and its related forms of agricultural use of the airplane, shows the most promise. Here is a development of the past 15 years worthy of our best efforts at promotion, because it makes the airplane an agricultural tool, allying it closely with the third largest industry in the country.

Within the last two years agricultural flying has widened its promises. Cooperation between the plant pathologists, entomologists and other experts of the U. S. Department of Agriculture, the manufacturers of insecticides and pesticides and the men who operate airplanes has opened a new field that can mean tremendous growth in civil flying. We can now control weeds, fertilize, seed, kill insects and

For Aviation Industry

• QUALIFIED PERSONNEL

The best investment you can make is in a D. A. S. Graduate—

CHECK OUR TRAINING PROGRAM

Dallas Aviation School
SINCE 1926

Love Field Dallas, Texas
A division of Harry M. Chase, Inc.

In TEXAS visit

RITCHEY FLYING SERVICE

Meacham Field
Fort Worth
Day Telephone 6-2158
Night Telephone 8-1234

REPAIR STATION
No. 952

- Complete Aircraft and Engine Overhaul
- Repair
- Maintenance and Service
- Storage

APPROVED LOFT 2413

- Parachute Sales and Service

Government Approved
ADVANCE FLYING SCHOOL
No. 342

- Primary Flying School
- Commercial Flying School
- Flight Instructor Flying School
- Instrument Flying School
- Air Line Transport Rating
- Basic Ground School
- Advanced Ground School
- Airplane Brokerage

LOST VALLEY
RESORT RANCH
GOLF . . a smart, sporty course on the ranch, grass greens and tees.
HORSEBACK RIDING . . on the very horse you're looking for — over picturesque hill country trails.
TENNIS ★ SHUFFLEBOARD
PING PONG
Rough it during the day, rest in comfort de luxe at night.
Write or call for reservations and rates.
LOST VALLEY RESORT RANCH
Bandera, Texas

control diseases in farm crops faster and better from an airplane. Our forests and ranges are no longer inaccessible or bigger than we can handle on foot. The man with the hoe seems about to lose his job as a symbol of agriculture. The man with the airplane may take over.

Here is a golden opportunity for the government to serve its citizens. I am happy to report that every advantage is being taken of this opportunity. The experts of the Department of Agriculture are thoroughly aware of the importance of the airplane in modern farming. They are "on top" of every new development, and, with their great organization in the field, are working daily with farmers and pilots in bringing these two together with profit to both and great benefits to the people of the whole country. CAA's field people, of course, are furthering this use of the airplane in every way.

Statistics are dull, but they can give us a picture of 15 years more accurately than anecdote or comment. In 1934, we had 8,322 civil aircraft. Today we have 97,000. Our total of 13,949 pilots in 1934 compares with present figures of around 500,000. In 1934, civil flying totaled 75,000,000 miles and in 1947, one and one-half billion miles.

We built 1,615 aircraft in 1934 and climbed from that to the tremendous figure of 96,318 in 1944, dropping to 17,717 in 1947. Our airlines have increased their passenger miles flown from 189,000,000 in 1934 to six billion miles in 1948. These and many other statistics reflect steady and lasting growth of aviation during the last fifteen years.

Less Industry Regulation

It would be impossible for the CAA to regulate in detail an industry of this size. To do so would require a tremendous staff of Federal employes, a staff so large that no taxpayer would approve of it. However, regulation and the enforcement of penalties on the few who do not abide by the rules still is necessary, and the method of doing this is one of the cheering aspects of the picture. In the last three years, the CAA has handed over to industry a tremendous amount of the inspection and supervision formerly done by its own inspectors. This is in line with the tendency to turn over to industry its own regulation, to shift responsibility for safety onto the shoulders of those most concerned, and to decrease the requirements for government regulation throughout the industry.

By March 1, 1949, 6,189 industry

PACIFIC AIRMOTIVE

Western Headquarters for Executive Flyers

AIRLINE-QUALITY SERVICE AT LOWER FLAT RATES

PAC Air Terminal Facilities at Burbank

PACIFIC AIRMOTIVE corp.

PAC at Los Angeles

Land at Lockheed Air Terminal, Burbank, one of the finest airports in the West. Ask the tower for taxiing directions. Equipped to handle any type of airplane or engine.

24-hour service. Everything from gas and oil to a major overhaul. Complete stock of parts and supplies. Inside hangar space or outside tie-down, pilot's lounge, telephone and stenographic service. Good ground transportation available.

Address: 2940 North Hollywood Way, Burbank, California
Telephone: STanley 7-2781

PAC at Kansas City, Kansas

Land at Fairfax Airport and taxi to hangar No. 5. The tower will direct you.

Equipped to handle any type of airplane, and engines up to twin row size. Complete 24-hour service, including supplies, overhaul, tie-down and hangar space, etc.

Address: Hangar 5, Fairfax Airport, Kansas City, Kansas
Telephone: Atwater 6300

ANCHORAGE, ALASKA; BURBANK, CALIFORNIA; KANSAS CITY, KANSAS; LINDEN, NEW JERSEY; OAKLAND CALIFORNIA; SEATTLE, WASHINGTON

representatives were giving flight and other airman examinations, issuing student pilot permits, under the general supervision of CAA Safety Agents. In the examination and approval of aircraft, another 1,765 designees were at work, and 2,101 medical representatives were designated as official CAA representatives. This designation of more than 10,000 people within the industry brings the official services closer to the persons who use them, and avoids the necessity for building up and maintaining a huge Federal bureaucracy. ★ ★ ★

FIFTEEN YEARS

(Continued from page 17)

our efficient, safe and highly-engineered flying machines of 1949 with the way we often do business.

The ceiling for lightplanes is unlimited, restricted only by our own shortcomings. More people are flying more good airplanes more miles than ever before in history. So long as the facts permit us to make that statement the branch of the aviation industry which accounts for 99 per cent of all aircraft flying today is going to be all right. ★ ★ ★

PRECISION . . .

In the Rebuilding of Aircraft Engines and Engine Accessories Is Essential to a Good Reputation. Our Customers Have Proven the Reliability of Engines and Accessories Rebuilt by . . .

PRECISION AEROMOTIVE
CORPORATION

MUNICIPAL AIRPORT — WYDOWN —9-1234— — HOUSTON 17, TEXAS

DON'T WORRY, it's a MET-L-PROP on that student training plane

When students err (as they often do!) a Met-L-Prop on the training plane means money saved for you, because 95% of all damaged Met-L-Props can be repaired. What's more, we'll do the job for you, quickly and economically. Then too, with a forged aluminum Met-L-Prop there are no adjustments, no re-tipping, no gadgets...no warping or splitting . . . just practical, satisfactory service at lower cost.

MET-L-PROP FORGED STRENGTH McCAULEY CORPORATION

McCAULEY CORPORATION
1840 Howell Ave.
Dayton 7, Ohio

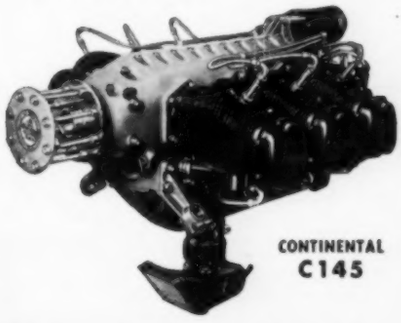
CAA approved and available immediately for most airplanes powered by Continental 65-145 H.P., Franklin 150-165 H.P., and Lycoming 100-108 H.P. engines. Ask your dealer for complete information or write for free folder on Met-L-Prop, the FIRST AND FOREMOST METAL PROPELLER for personal planes.

Flying Costs Less than Driving

On a recent round-trip business flight from the Midwest to the Pacific Coast, — some 4,000 miles in all — careful record was kept of all expenses. The figures showed that in this case, as in countless others, the cost of the journey was far lower than if it had been made by car. Actual money saving amounted to about one-third. When you add to this the time saved, and consider the greater comfort of flying, you begin to understand the increased use of personal and executive type planes. Have the Continental dealer at your airport tell you how easy it is to "Start Flying Now".

WHEN YOU NEED SERVICE — CONTINENTAL HAS IT

When you choose a Continental-powered plane, you get the backing of a service network as far-flung, and as competent, as the service organization behind your car. There are Continental service and parts at almost every airport in the free countries of the world.



CONTINENTAL C145

More Power For You

Here's the 6-cylinder 145 h.p. engine that is powering a number of 4-place personal and executive planes. The introduction of the C-145 was another phase of the long-range Continental Motors program of building the engines that meet the needs of the aircraft manufacturer — and user.

Continental Motors Corporation
Aircraft Division
MUSKEGON, MICHIGAN

Aviation FINDS A FAVORABLE *Climate* IN THE *Southwest*

War-born aviation in the Southwest has come to stay .... major airlines, manufacturers, and maintenance services have found the "climate" favorable. And they aren't talking strictly about the weather, which permits maximum operation. • That favorable climate includes labor that is both intelligent and friendly; an inland location with good transportation facilities; conveniently located sources of supply; and adequate financing for the industry. • Members of the Dallas Clearing House Association are proud of the many aviation firms, both large and small, that make their home in the Southwest. May they continue to grow and prosper.

DALLAS CLEARING HOUSE ASSOCIATION

COMPOSED OF THE FOLLOWING BANKS:

First National Bank in Dallas

The National Bank of Commerce

Dallas National Bank

Mercantile National Bank at Dallas

Republic National Bank of Dallas

National City Bank of Dallas

Texas Bank & Trust Co. of Dallas

Grand Avenue State Bank

The Hillcrest State Bank

Oak Cliff Bank & Trust Company

City State Bank of Dallas

Lakewood State Bank of Dallas

Empire State Bank of Dallas

SYMBOL OF PROGRESS

(Continued from page 17)

is a far more efficient piece of machinery than the prewar light airplanes, and in fact that it is a more efficient airplane than the modern large heavy airplanes."

Beech-designed and Beech-built airplanes have won distinction for efficiency in performance for 25 years, starting with three Travel Airs which finished the 1925 Ford Reliability Tour with perfect scores. They have included a variety of ships ranging from the OX-5 Travel Airs to transport and racers such as the Woolaroc and Mystery S designs, the famous stagger-wing Beechcrafts and the Beech Twin. Walter H. Beech himself won many events in airplanes he designed and built—a true pioneer aircraftsman and 10,000-hr. pilot whose genius for efficient flight performance has established Beechcrafts as the world's most widely used executive airplanes. Over 1,900 Bonanzas and 490 Beech Twins have been produced since the war, during which 7,402 Beech airplanes were built in the Wichita, Kansas, factory established on April 1, 1932, in the depths of the depression.

Beech-designed and Beech-built aircraft models totaling over 80 in number have obtained Approved Type Certificates. More are on the way, with new models of exceptional design now on the drawing boards. Constant improvement continues on current models and experimentals featuring the Beech V tail. Meanwhile the company maintains its record of profitable commercial operations, an achievement as distinctive in aircraft manufacturing as its airplanes are in flight performance. ★ ★ ★

Airmen's Calendar

April 21-22—National Agricultural Aviation Conference, Kansas City, Mo.

April 22-24—Second Annual Oklahoma City Air Show, O. C. Chamber of Commerce, Sponsor.

April 24-27—American Association of Airport Executives Convention, Biltmore Hotel, Oklahoma City, Leigh Fisher, Convention Chairman, 7337 Churchill Ave., Detroit 6, Mich.

April 27-29—Florida Air Tour, From Page Field, Ft. Myers.

April 28-29—Six IAS Personal Aircraft Meeting, Allis Hotel, Wichita, Kansas.

April 29-May1—Texas Ninety-Nines Spring Meeting, Fort Clark Guest Ranch, Brackettville, Texas.

April 30-May 1 — Fourth Annual Southeastern Air Show, Craig Field, Jacksonville, Fla.

April 29—Florida Flying Alligator Club Spring Party, Jacksonville, Fla.

May 2-4 — Second Annual Airport Operators Council Meeting, Denver.

May 5-6 — Second Annual Purdue University Air Transportation Conference, Lafayete, Indiana.

May 6-7 — National Intercollegiate Flying Meet, Eagle Mountain Marine Air Base, Fort Worth, Texas.

May 26-29—Louisiana Air Tour.

May 27-30—20th Annual WNAA Convention, Chase Hotel, St. Louis.

AIRLINES

(Continued from page 40)

defense, constitute the true formulative years which have made U. S. air transport the envy of the world. While effete government policy may have served to restrict rather than accelerate growth, one can not study the figures of the past fifteen years without coming to realize that no form of transportation in all history, and indeed few fields of human business endeavor, have accomplished so much growth and acceptance in so short a span of years.

No doubt the next era of scheduled air transportation development in this country will bring about continued growth and success. The surface has only been scratched in such areas as low-cost "air-coach" transportation, the carriage of cargo, field of short-haul services to the smaller communities, or in inter-continent air commerce. But the base for these developments will have been laid in the fifteen-year era just ending. ★ ★ ★

Positions Open in West Coast

Scheduled Helicopter Operation

AIRMEN

Flight, Administrative and Technical Research with or without Helicopter training. Multi-Engine time required.

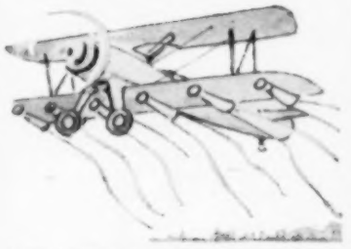
TECHNICAL

Maintenance, Radio, Engineering and Inspection
Power Plant and Machining
Background Important

Employment Contingent upon Comprehensive Training Program
Apply by Mail Only

LOS ANGELES AIRWAYS, Inc.
5901 West Imperial Highway
Los Angeles 45, Calif.

"100% Kill . . . No Plugging or Trails"



High praise for Burnum Venturi Spray Systems comes from E. P. Stubblefield, Vice President, Rainbow Dusters, Inc., Los Animas, Colorado, as follows: "We have found our Burnum Venturi Spray unit more than met our expectations. We had 100% kill using DDT and Clorodane. With Clorodane we have had good grasshopper control. 2,4-D on wheat and corn is also sure-fire for weed spray with this unit. Maintenance is minimum with no plugging or trails. We sincerely recommend the Burnum Venturi Spray System."

SWITCH TO SPRAY!

You, too, can do the job better with our units, available in handy kit form, fully-approved by CAA. We also stock Stearmans modified into combination duster-sprayers. Send for particulars today.

10 *Exclusive Features*

1. Cockpit control in flight for start-stop and metering up to 50 gals./min.
2. Venturi action eliminates pumps, giving automatic force-feed.
3. Perfect droplets at all times, eliminating fogging.
4. Patented dispensing valves eliminate nozzles and are self-cleaning, non-clogging.
5. 102-gal. fuselage tank slides in and out for passenger or other use.
6. All parts installed and operated without structural changes.
7. Light weight. System weighs less than seat, panel, etc., which are removed.
8. Shipped in complete kits with all parts, fittings, instructions.
9. Fully approved by CAA and in use in many states and Mexico.
10. Easily installed by two A. & E. mechanics in only 2 days.

BURNUM AVIATION CO.
Manufacturing, Sales, Installations of Venturi Liquid Spraying Systems
Lucas Field Arlington, Texas
Tels. 1535W1 and 253W

INTERSTATE AIRCREDIT CORP.

MUNICIPAL AIRPORT MINNEAPOLIS, MINN.

First in Aircraft Financing

"**VELOCITY OF FLAME** propagation of jet fuel components is measured to thousandths-of-a-second accuracy in this 14 foot test tube... an important test technique developed by Esso Laboratories in its search for better fuels for the world's fastest planes."

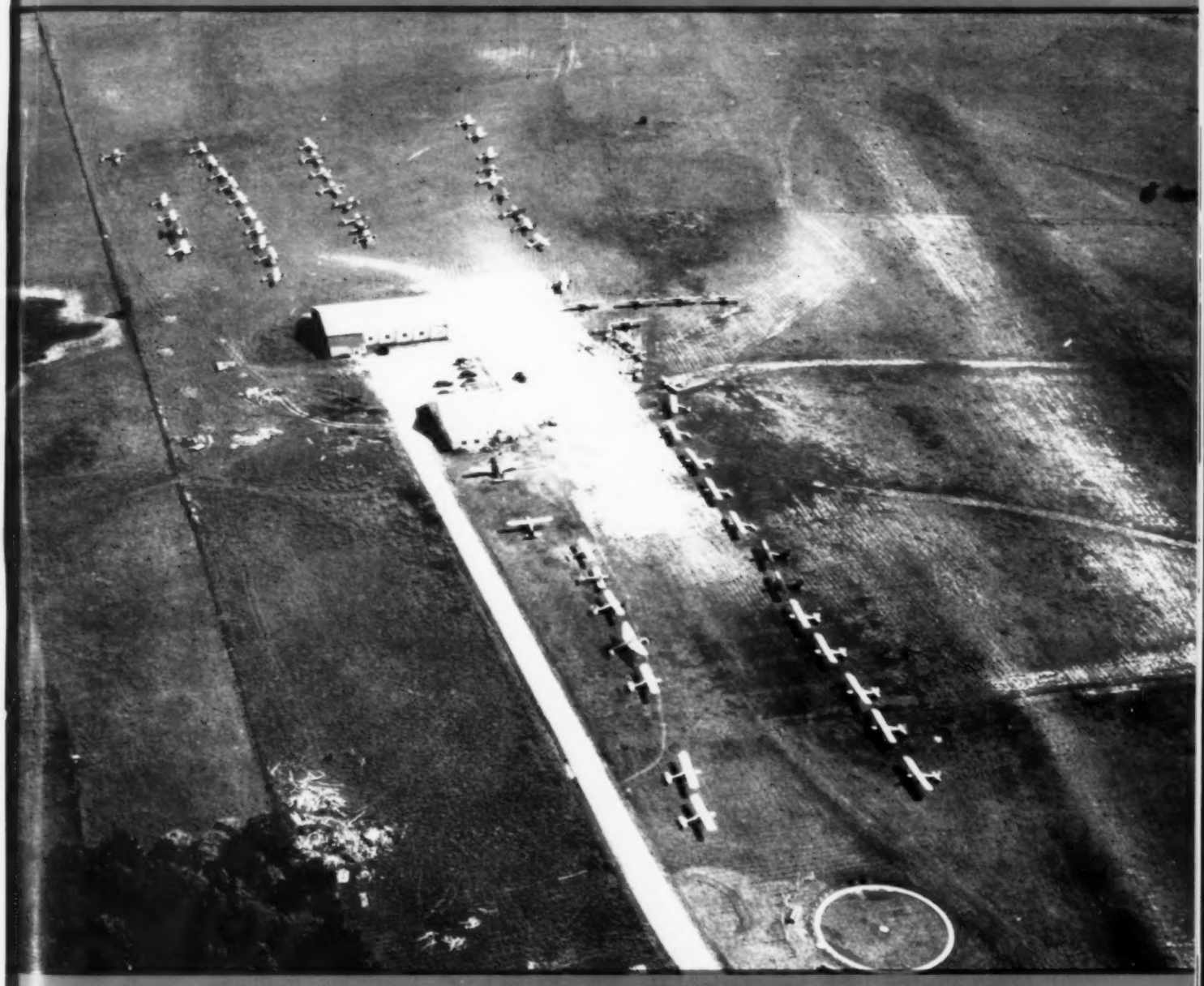
W. R. F. Guyer
Esso Laboratories
Linden, N. J.

"**AFTER USING** Esso Aviation Fuels and Lubricants for thousands of hours in our agricultural planes, where good, reliable performance is really essential, and knowing about the thorough research behind every Esso Aviation Product — we make it a point to recommend Esso Aviation Fuels and Lubricants to our customers."

J. E. Hooper, Jr.
Vice President & General Manager
Zigler Flying Service, Inc.
Jennings, La.

VOL XI, NO. 2 APRIL, 1949

Modern AIRPORTS



THIS MONTH'S MODERN AIRPORT photograph is dedicated to all small airports which are the foundation for the development of private flying. Good service, good maintenance of adequate turf or strips and courtesy are more important to private flying growth than airport size. Picture shows aircraft from Alabama, Georgia, Florida and Mississippi gathered at Allenport Airport, Montgomery, Alabama, for a Montgomery Aero Club breakfast flight attended by 135 visitors. Club members furnished cars to Narrow Lane Inn, adjacent to airport, for food. Model autos were raced on a small circular track (bottom of picture), model airplane aerobatics were demonstrated and sailplane maneuvers were staged.

In This Issue

Airports for Aviation Progress—By S. E. Travis, Jr. - - - - - - - - - - 50
Questions and Answers for Airport Operators - - - - - - - - - - 53

Airports for Aviation Progress

From cow pastures and 40-acre patches a great airport system has paced aviation

Prominent in national airport developments for years, Ed Travis here vividly charts from local and meagre beginnings the emergence of our modern airport network. With his manuscript came this note, which we pass on with endorsement: "I understand it is not good form to write for publication in the first person but, after all, the only facts I know are based on my own experiences. It wouldn't make much sense, to me anyway, to recount them in the third person. In fact, it would be downright silly. So good journalistic practice notwithstanding, here goes."

By S. E. TRAVIS, JR.
Chief, Airports Branch,
Region 4, Civil Aeronautics Administration

I NEVER would have gotten myself involved in the airport business if a guy by the name of Lindbergh had stayed at home, but he didn't. Instead, one May day back in 1927 he crawled into a Ryan monoplane and flew the darn thing all the way from New York to Paris. I don't think he knew anybody in Paris either. He just wanted to take a ride.

What happened? My home town in Mississippi, and many others in most of the other states, decided it must have an airport—not just an ordinary airport, but an A-1-A airport. The Aeronautics Branch of the Department of Commerce was actually rating airports in those days and issuing certificates which the airport manager could frame and hang on the wall of the hangar (he didn't have an office) for all to see. The A-1-A rating signified the best and the finest—the end result beyond which no one need ever plan. It was public notice that the landing area was at least 2,500 feet long, that the approaches were 7 to 1 or better, that the airport was lighted for night operation and that gas, oil, and airplane storage were available. I am not sure many people had ever seen a paved runway at that time. They were not even mentioned in the rating regulations.

Well, that is what my town wanted, an A-1-A airport, nothing short of the best. Nobody knew why nor did anyone try to find out.

In those days I was making a not-too-good living in the consulting engineering business. Fortunately I had a good partner, or the living might have been worse. The upshot of the whole deal was that the civic club to which I belonged felt it had the grave responsibility of promoting an A-1-A airport. A committee was appointed which included me, and I found myself in the airport business.

Airports Without Public Sentiment

Selecting a site (I didn't say suitable; that is a new word) was our first job. It was no problem at all. The mayor, who was a lumberman, had a piece of cut-over land which he probably couldn't sell to anyone else. That was the site, and the town bought it after the Department of Commerce inspector, none other than Jack Jaynes, now Assistant Regional Administrator in Fort Worth, approved it. A few dollars in bonds were voted, trees were cut, stumps were grubbed, the field was smoothed up a little, a hangar was built—a big one, 80 x 100 ft.—and we installed a revolving beacon, boundary lights, and a big flood light in one corner of the field.

So now my town had an airport. The fact that it was six miles from town in a creek bottom that flooded after every hard rain didn't bother us. Very few people were going to fly anyway. There wasn't any place for them to go; before starting they could certainly wait until the water ran off. Besides, it was that site or no airport.

The next move the mayor made was to put the conductor of his logging railroad on the city payroll and make him the airport manager. After all, that wasn't any great sacrifice because he was shutting down the logging railroad anyway, and it saved firing the poor fellow. Mowing the grass was quite a problem, but the manager was equal to it. He simply opened the fence in several places and let the cows in. They did a pretty good job, too.

All this may sound like a tall story but we assure you there is nothing satirical about it. It is the gospel truth. But I do want to make it clear that I am not lampooning the mayor. He was a fine, public-spirited gentleman, one of the best mayors my town ever had. Without his sincere and earnest cooperation, the airport would not have been built. This was in 1927 and 1928, and that is the way all airports were built in those days. I could name dozens of similar instances. Public sentiment in favor of airports was practically non-existent, and unless someone could be found who would practically donate a site, albeit a most unsuitable one, many of our airports would not have come into being.

Today this airport is serving a very useful purpose. It has three excellent paved runways, ample apron, new hangars, is a scheduled airline stop, and, all in all, quite a busy place. The logging conductor long since passed from the picture. Incidentally, I got my first flight instruction on this field in a Wright J-5 Laird. Remember the vintage?

Thus far, I have gone to considerable length to relate a personal experience which will be valueless unless we glean from it this important point: In those days, a relatively small group of people whose only interest was objective rather than personal put their heads together and worked hard without recompense against seemingly insurmountable obstacles to achieve a net result which today would appear little short of ridiculous but which, in reality, was the seed from which has grown our modern air transportation industry. To me the experience vividly emphasizes the power of a small but determined group of people to force the wheels of progress forward. Aviation people are still few in numbers, comparatively speaking, and the end is not yet—there is much hard work ahead with little personal reward before the end we seek, mass transportation by air, can be realized. But the progress I have seen is little short of amazing. That is why I stay in the business.

Jobs for Needy; Cash for Airports

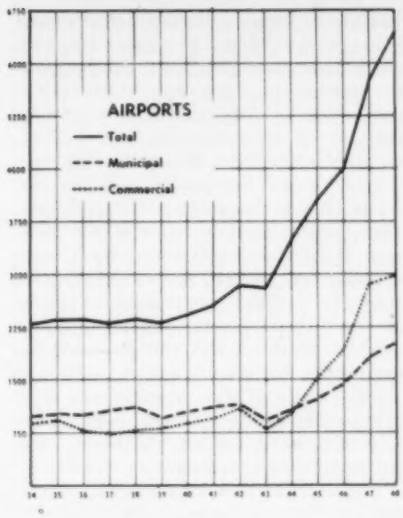
After my home-town airport was built, I found more time to devote to my engineering practice when there was any work to do, which was seldom, and that not-so-good living I had been making grew steadily worse. Remember 1929, 1930, and 1931? In the latter part of 1933, my partner asked me if I knew anything about the airport program the Civil Works Administration was starting. The CWA was President Roosevelt's first stab at work relief. I didn't know anything about the program, but it seems that a good friend of my partner had been named State Airport Adviser by the Aeronautics Branch of the Department of Commerce and wanted to employ an engineer assistant.

The aviation inoculation I got as a result of my efforts in behalf of my home-town airport took effect. I applied for the job, and in December, 1933, became Assistant State Airport Adviser for Mississippi, thus beginning my Federal employment. Except for a brief period, I have been associated with the development of airports since that time.

The CWA program was unique in two respects. It marked the first time the Federal government had put up cash dollars for constructing public landing areas, and it signalled the

Airports and Landing Fields

Calendar Year	Total	Commercial	Municipal	CAA Intermediate	All Others	Lighted Total
1934	2,297	872	980	259	186	664
1935	2,368	822	1,041	291	214	698
1936	2,342	774	1,037	296	235	705
1937	2,299	727	1,053	283	236	720
1938	2,374	760	1,092	267	255	719
1939	2,280	801	963	266	250	735
1940	2,331	860	1,031	289	151	776
1941	2,484	930	1,086	283	185	662
1942	2,809	1,069	1,129	273	338	700
1943	2,769	801	914	240	814	859
1944	3,427	1,027	1,067	229	1,104	964
1945	4,026	1,509	1,220	216	1,081	1,007
1946	4,490	1,929	1,424	201	936	1,019
1947	5,759	2,849	1,818	178	914	1,447
1948	6,414	2,989	2,050	161	1,214	NA



establishment within the Department of Commerce of a unit charged solely with the promotion and development of airports. It was the Airport Marking and Mapping Section of the Technical Development Division of the Bureau of Federal Airways of the Aeronautics Branch of the Department—about as far down in the organizational structure as it could be placed. This was the outfit I was working for, and the job was really a lot of fun. In fact, it quickly became an avocation rather than a vocation and has remained that ever since.

The very naiveness of the people in the business made it interesting. We had no specifications and no regulations. No one knew enough to write such documents — just a few mimeographed sheets from Washington. They said we should try to select sites containing at least 40 acres of land. Once that was done, all we had to do was find a public agency willing to lease the site for at least 5 years. It sounded very simple. No red tape, nothing to do but find a site and get a sponsor. CWA would do the rest. Of course, we soon found out we had to have a few plans, not because the regulations required them, but because the contractors wouldn't bid on doing the construction work without them. Odd, isn't it?

Let's get back to the five-year lease deal. I was bubbling over with enthusiasm and had come to envision an airport as a must for every community and aviation as a panacea for all national ills (this was in 1933 and 1934, and I haven't changed my mind). So I began to beat the bushes of Mississippi —found lots of good airport sites, for, after all, 40 acres wasn't very big— all of them close to town. Then did I go to the city hall with the airport all wrapped up in a neat package? I did not. I found out early that deal didn't work. Instead, I walked the streets until I found two or three solid citizens whose mentality was about on a par with mine when it came to aviation—just plain crazy. Such individuals were decidedly conspicuous by their absence. If I couldn't find one or two of them, that airport was out the window, and I moved to a new location. But every now and then I did find a few people with the pioneer spirit. Most frequently they were automobile mechanics or filling station operators. On rare occasions I found visionary merchants or professional people. Almost invariably this type had a World War I aviation background.

When the right people were found, we joined forces and paid a visit to the owner of the site for the purpose of negotiating the terms of a lease (usually for five years) which not only would satisfy him but would involve little or no financial outlay on the part of the community. This had to be because if the airport was going to cost the town anything, we couldn't sell it. As I look back, I am still amazed at the success we had. True, we seldom got the first site we went after; the land and location made it too valuable. We had to be satisfied with less desirable locations, but we could use them and we did.

Next, my friends, the solid citizens — not me — sought and got an audience with the city fathers, dragging me along as a high and mighty government official to do the talking. Truthfully, I felt very important, and I can remember leaving many such meetings with what little ego I had had completely dissipated and filled with disillusionment and discouragement.

Our dismissals were usually rather blunt and just about as negative, but one remains very vivid in my memories. A very patient city council had listened to me for about an hour and a half until, in fact, I ran out of ammunition. I honestly believed I was getting somewhere until the mayor, a very fine old gentleman, smiled at me and said, "Young man, your enthusiasm is refreshing. This is a progressive town. It needs many improvements. I regret that an airport is not one of them."

We Built Airports Quickly

Youth is a great thing. I had it in those days, and it was remarkable how a good night's sleep would wipe out all traces of disillusionment and discouragement. Besides, we built a few airports which helped do the job. On those rare occasions when the city fathers were persuaded to execute the lease, I went forthwith to the engineer of their choosing, collared him, and said, "Come on! You and I have got an airport to build." I helped him with his surveys and that night we drew the plans and worked out the estimate in his office, or in a hotel room if he didn't have an office, put all these data on a CWA application, and by daylight I was back in Jackson waiting for the CWA Administrator to show up and approve the project, which he always did in ten or fifteen minutes. And within three or four weeks, if the weather was good, the airport was finished. Of course, the projects didn't involve much money, but we had to finish them quick so the sponsor wouldn't have time to back out.

Incredible as it may seem, the CWA program accomplished a great deal. In the one year of its existence twenty-five airports were started in Mississippi, twenty of them were completed, and, insofar as I can ascertain, the twenty are now publicly owned and still active. Some of them haven't grown any. Others have. For instance, Keesler Field at Biloxi, Mississippi, had a humble CWA beginning and was a going municipal airport with one paved runway, a good hangar, and a CAA communications station before Uncle Sam took it over. The airport at Starkville, Mississippi, which serves Mississippi State College, is another. This program was the real beginning of what we have today.

The Civil Works Administration folded up June 30, 1934. It had been administered at the state and local level and had probably been subject to many abuses, but it worked well with airports. There was no lost motion and no red tape.

The Federal Emergency Relief Administration took over July 1, 1934, and operated for one year. This was the period of the so-called leaf-raking program, and accomplished little in the way of airport development because Federal funds could be used for labor only whereas airport projects require equipment and materials.

Legislation creating the Works

Progress Administration, which later became the Work Projects Administration, was enacted by Congress in the spring of 1935 and that agency took over on July 1 of that year. The activity of this organization was extremely restricted. While it was permitted to rent equipment and buy material, it was required to keep project costs of this type at such a low man-year level that, in the case of airport development, it was necessary to saturate the project with labor in order to set up enough non-labor money to get the job done. But the organization had some topsides people in it who were friends of aviation and we were often able to bypass the regulations and did see a lot of worthwhile development accomplished.

Rather than dwell on what was done during this program, I would like to recall one instance. The late Sumpter Smith, whom many will remember as one of the fathers of the Washington National Airport, headed up the Airport Division of the WPA in Washington. In the late summer of 1935, the WPA Administrator in Jackson received a telegram from Col. Smith directing that a statewide airport project for Mississippi be forwarded to his office within three days. I developed the project, working up the basic data for the development or improvement of 86 airports in Mississippi. The job required two and a half days and two nights without rest. The statewide project was subsequently approved and, although the development of some of the airports in it was never undertaken, sites still came hard, leases were no longer satisfactory, outright ownership was required, the project was the basis for substantial airport development in Mississippi, and, as I later learned, in almost every other state.

In 1937, I was named District Airport Adviser and transferred to New Orleans. Alabama and Louisiana were added to my territory. By this time there had been organizational changes within the outfit, too. I was now working for the Airport Division of the Federal Airways Branch of the Bureau of Air Commerce. We had outgrown the "Section" stage and were in our "teens" so to speak.

The year 1938 saw the passage of the Civil Aeronautics Act and the regionalization of all airport work (hitherto we had reported directly to Washington). Alabama and Mississippi went to Region II. I kept Louisiana and also took on Arkansas and Oklahoma. Then, in late 1940, the WPA program had slowed down to such an extent that the New Orleans District Office was closed and I moved to Fort Worth. The San Antonio District Office was closed about the same

Civil Aircraft Distribution by States

AS OF DECEMBER 31, EACH YEAR*

	1935	1936	1937	1938	1939	1940	1941†	1942†	1943†	1944†	1945	1946	1947	1948
Ala.	57	68	70	64	92	121	185	205	243	268	391	908	998	996
Ariz.	51	67	59	70	87	105	156	259	459	310	405	885	1,164	1,241
Ark.	52	60	57	60	85	154	211	240	375	312	481	899	1,078	1,172
Calif.	897	934	956	1,179	1,494	1,848	2,404	1,618	1,068	1,743	3,732	8,456	10,221	10,741
Colo.	56	67	68	104	143	174	248	217	261	283	429	1,088	1,313	1,349
Conn.	100	104	125	151	162	200	274	214	174	258	343	635	755	706
Dela.	37	42	36	56	63	90	134	91	51	57	97	215	247	232
D. C.	79	109	120	123	153	218	311	307	313	419	994	986	933	706
Fla.	148	195	187	250	302	391	564	596	563	710	1,190	2,572	2,907	2,787
Ga.	120	110	110	163	172	246	380	414	480	467	643	1,346	1,538	1,419
Idaho	39	40	44	53	64	93	123	156	196	234	303	545	718	841
Ill.	510	561	567	688	896	1,003	1,370	1,314	1,124	1,374	1,571	3,705	4,503	4,659
Ind.	257	290	303	396	480	546	687	643	679	814	1,112	2,269	2,718	2,775
Iowa	186	185	158	197	263	390	549	572	644	677	802	1,734	2,190	2,388
Kans.	223	207	201	210	244	408	501	541	593	660	962	2,410	2,719	3,119
Ky.	53	65	64	78	104	129	176	186	179	211	286	686	835	869
La.	108	106	85	113	136	210	284	284	273	253	328	760	984	1,051
Maine	61	63	73	106	122	137	203	172	153	158	206	491	605	636
Md.	113	106	111	130	167	239	373	329	227	291	431	1,468	1,184	1,023
Mass.	213	222	183	273	328	411	594	496	407	479	598	1,255	1,454	1,425
Mich.	387	395	441	496	599	748	1,017	1,046	1,046	1,496	1,896	3,779	4,695	4,450
Minn.	191	187	219	268	333	443	600	515	556	602	821	1,798	2,073	2,139
Miss.	59	64	74	101	117	122	155	143	187	175	321	612	720	714
Mo.	242	238	233	276	362	522	649	604	575	780	1,102	2,171	2,404	2,315
Mont.	66	71	81	82	92	144	170	157	175	208	288	656	845	1,027
Nebr.	131	135	124	151	175	177	224	252	285	339	444	1,139	1,534	1,761
Nev.	24	24	22	38	35	52	71	123	255	194	223	383	422	418
N. H.	26	34	39	44	51	60	90	75	130	95	118	244	304	308
N. J.	217	234	236	302	404	504	698	492	335	495	694	1,393	1,650	1,672
N. M.	34	28	28	34	38	79	164	171	174	221	333	617	785	763
N. Y.	814	937	859	961	1,118	1,341	1,765	1,570	1,387	1,767	2,297	4,107	4,797	4,661
N. C.	106	124	132	207	263	367	496	475	398	463	676	1,579	1,817	1,790
N. D.	82	86	74	69	87	118	129	118	161	187	256	579	851	1,077
Ohio	460	471	504	629	802	923	1,286	1,148	1,181	1,404	1,810	4,448	4,789	4,414
Okla.	206	214	206	225	262	369	526	566	683	698	971	1,862	2,368	2,453
Ore.	127	130	141	157	191	232	334	273	233	251	434	1,227	1,619	1,795
Pa.	490	565	656	752	976	1,446	2,357	1,752	1,715	1,781	2,264	3,838	4,393	4,248
R. I.	31	38	41	67	102	136	169	124	61	79	89	181	199	204
S. C.	42	54	54	78	110	163	234	211	289	276	439	760	836	758
S. D.	69	79	69	64	73	92	119	112	138	141	207	585	746	914
Tenn.	97	117	89	134	164	230	313	327	408	461	557	1,216	1,306	1,228
Texas	401	463	511	610	699	1,025	1,418	1,647	1,815	2,239	3,010	7,789	8,347	7,856
Utah	34	38	37	40	48	83	122	165	201	172	206	468	542	534
Vt.	14	37	35	35	42	60	75	78	107	66	79	144	187	212
Va.	98	113	123	129	191	272	402	412	407	395	610	1,220	1,437	1,459
Wash.	146	153	169	200	235	304	448	433	465	509	677	1,616	2,043	2,231
W. Va.	59	64	70	101	143	148	209	237	242	225	291	567	660	670
Wis.	227	230	229	252	298	374	490	478	514	659	824	1,731	2,013	2,202
Wyo.	37	52	43	46	58	70	102	102	82	103	140	326	428	506
Outside U. S. A.	—	—	—	147	147	211	277	244	260	362	408	654	947	1,083
Total	8,277	8,976	9,116	11,159	13,772	17,928	24,836	22,904	22,927	26,822	37,789	81,002	94,821	95,997

*For the years 1938 through 1945 gliders are not included. For 1946 and subsequent years they have been included.
†Only aircraft with airworthiness certificates shown.

time, and Hester Smith was also moved to Fort Worth. Incident to all this confusion, the title of the position was changed from District Airport Adviser to District Airport Engineer.

Military Airport Planning

We had hardly gotten to Fort Worth—the four of us, Hester Smith, two secretaries, and I constituted the entire Fourth Region Airports contingent—when Congress appropriated a substantial sum of money for the "Development of Airports for the National Defense" and Smith and I were ordered to Washington to set up the first DLAND program. While the location of all projects in this program was subject to approval of the military, there was no war in progress, and we were successful in developing a practical program of airports at convenient locations and of a size commensurate with the needs of the communities—a large number were class 2 airports. Then came Pearl Harbor and several additional appropriations. How the picture did change. The military took over.

No longer would an airport close to town satisfy their requirements. Most of our few little class 2 airports were swallowed up with extensions. Everything had to be class 4 or larger, all of which was logical from the military viewpoint. There was a war to be won. Civil aviation needs were of little or no consequence. No one, least of all CAA, questioned military judgment in military aviation matters, but fortunately, the law required that all airports built under its provisions must have civil as well as military justification. In many cases we were unable to find that civil justification and did not participate in the development that ensued. This is fortunate because it has relieved CAA of some of the direct responsibility of rehabilitating many Air Force fields for civil use when they are patently not suitable for such use. But, on the other hand, the DLA program did much for aviation. It is directly responsible for providing the airports which have made possible the wide use of such aircraft as the Constellation, the DC-6, the Convair 240, and the Martin 202, and it provided for the splendid network of feeder lines now operating in the Southwest; the net result was generally good.

On May 13, 1946, the President approved the Federal Airport Act, thus establishing the principle of Federal aid for airports in much the same manner and along the same lines as Federal aid for highways was established many years ago. While this program now in full swing is showing improvement and, at the same time, developing good results, it is much too new to deal with historically. That is a suitable project for tomorrow's scribes. At the same time, it can be compared, objectively, with the programs that have gone before.

Progress in U. S. Programs

The CWA, the FERA, and the WPA carried on work relief programs. The object of Congress when it authorized the programs these organizations carried out was to provide work for needy people. True, it was expected that some useful public works would result, but this was secondary to the tremendous problem of quieting general public unrest. The measure of the success of the programs was the number of people rehabilitated, not the work accomplished. Consequently, the type, character, or utility of the finished project was not the subject of material regulation or restriction.

Likewise, the DLAND program was not framed around the needs of civil aviation. The chief objective was national defense, and, later, to aid the war effort. Civilian requirements were incidental and secondary. As a result, the program was streamlined for speed and particularly free from regulations and restrictions related to postwar civil use.

In the Federal Aid Airport Act, Congress has, for the first time, and, as a primary objective, provided for the orderly development of civil airports. In fact, this is the only objective Congress had in mind insofar as the Act relates to airports, and it couched the Act in language which requires the Administrator of CAA to see to it that this objective is attained. It should not be difficult for anyone who gives a second thought to the matter to recognize the complete dissimilarity between the Congressional objectives underlying the Federal Aid Airport Program and the preceding programs.

Administering the Federal Aid Airport Program is an extremely complex undertaking. Its procedures have been extremely irksome to sponsors and to the CAA alike. The measure of this program is not alone the character and the number of airports established, but the manner in which they later serve the public. The airport is the end result with no secondary or incidental aspects.

Nothwithstanding all this, procedures are being simplified. Short cuts are being discovered, and it is my conviction that, when it becomes time to write a history of the program, that history will be found to be so closely interwoven with the history of the advance of aviation that the two will be almost, if not quite, synonymous.

★ ★ ★

Questions and Answers For Airport Operators

Job Security for Managers

QUESTION: How can I get some security of tenure in my job of airport manager, so that I can feel that I'll be on the job long enough to plan and carry out a constructive airport program?

ANSWER: Well, well, we're mighty glad to hear from one of our readers out there on the Pacific Coast. That question of yours is almost a universal one among airport managers. However, we think you really meant, "If I do a bang up job as airport manager, how can I hold on to it in spite of hell, high-water and local politics?" Surprisingly enough, where the airport manager isn't trying to do a good job, politics is sometimes the only way he can hold on.

For those who are deeply in earnest in their efforts to operate, maintain, improve and promote an airport, it's mighty disheartening to face loss of a job because of a change in administration. Actually, management changes which occur every few years may considerably slow down progressive management. A staff uncertain of jobs doesn't help an airport much.

There have been several approaches made to this problem. Whatever is done should be proposed after careful scrutiny of state laws and local ordinances to see what is possible under existing laws. Some airport managers have sought and secured contracts for a given term of years. Where it is legally possible for the owning agency to enter into such an arrangement, this may be the answer. However, to be realistic about it, such contracts work out satisfactorily, we believe, only where the airport manager can sell the whole community and all of its various political powers on his ability to do his job.

A contract without sound public relations doesn't guarantee continued enjoyment and progress. Where a change in local administration creates a state of conflict, a contract is not likely to prevent a new and antagonistic administration from exerting its powers to restrict funds and limit management freedom with the result of stopping progressive development. No manager wants to work under such conditions of futility.

On the other hand many cities have approached the problem of stabilizing the management and control of airports by establishing airport boards with fairly full responsibilities. Where the local laws permit, such boards have been set up, usually subject to a proposal voted on by the citizens, with a provision that the members initially serve staggered terms. For example, if

there are 5 members, one will serve 5 years, one 4 years, 1 three years, 1 two years, and 1 one year. When any member's term expires the succeeding member is appointed for 5 years.

In this way no change of politics can change the complexion of the board at one sweep. The result is that the board has a continuity not obtainable when entire boards can be fired. Under these arrangements the boards are responsible for the manager and if he is doing a satisfactory job he can expect to stay on under conditions which enable him to continue good operations.

Stopping Reckless Fliers

QUESTION: Our field rules are just rules. A local hot rod cut out and jeopardized a landing airliner. When I said he was grounded for 30 days he just said, "Nuts to you." What can I do?

ANSWER: Probably you can't do anything about it unless your rules and regulations are backed by regularly enacted ordinances or statutes of the public agency owning your airport, which establish the rules, penalties, and powers of yourself. Of course, you can file a violation but I understand you feel the immediate need for being able to discipline reckless individuals. That's logical.

Many cities establish their airport rules and regulations by city ordinance, setting out penalties which may be imposed by the airport manager and also providing for trial in municipal courts. Where such ordinances are in force and give the airport manager authority for action they aid effectively in curbing "hot rods."

First make sure that under state laws you can have such an ordinance. If you can, then draw it up and ask for its passage. Write to other airports

SERVICE GUIDE FOR FLIERS —

WHERE to STOP

GEORGIA

FLYING TO ATLANTA?

For QUICK, COURTEOUS service stop at
Southeastern Air Service
Municipal Airport, C. C. Gilham, Mgr.
Distributors: Stinson, Ercoupe, Continental Parts; Lear Radios; Firestone Products; Gulf Gas and Oil. Careful handling; quick, expert repairs; inside storage.
OPEN 6 a. m. to 12 p. m.—Immediate Transportation Downtown.

LOUISIANA

SKYWAY 1 STOP-OVER

Modern tourist court and restaurant across street from airport. A 7-cent bus at our gate for those going downtown. 80 and 91 gas, all oil grades. A. & E. lives on airport. All-weather runways. Near-by strip on famous Cross Lake for fishing, fish dinners.
DIXIE AIRCRAFT SERVICE, SHREVEPORT AIRPARK
Shreveport, La. Dennis Bass, Operator Telephone 4-8868

TEXAS

For Stops in Dallas

GARLAND AIRPORT

(Shown on New Map as "Mustang Airport") 2 mi. E. of White Rock. Specialized service and facilities for transients. Hotel reservations made for overnight guests. Cafe and transportation on airport. Hard surface runways with clear approaches. No trainers. Storage and general repairs. Gulf Aviation Products. "The Business Man's Airport."

FEATHER-WEIGHT fly-fone

"The only major improvement in headphones since the first radio set was installed in an airplane . . ."

Now approved for airline use
by the issuance of
CIVIL AERONAUTICS ADMINISTRATION
APPROVED TYPE CERTIFICATE
No. 4R2-1

A Product of
AIR MARKET ASSOCIATES
Box 750 Dallas, Texas

Cable Address "AVIMAINT"

Aviation MAINTENANCE Corporation

METROPOLITAN AIRPORT
VAN NUYS, CALIFORNIA, U. S. A.

ENGINEERS
TECHNICIANS
and EQUIPMENT
UNEXCELLED IN
MAJOR OVERHAUL
and MODIFICATION
of LARGE
AIRCRAFT

in your state and you will probably find some good model ordinances on which to base your own.

Airport Hotels from BOQ's

QUESTION: There is a vacant surplus BOQ on the field. How can I get some revenue from it?

ANSWER: There appear to be various ways of using surplus bachelor officers quarters. Some fields have found a use as small hotels or boarding houses. Others have with minimum of remodeling planned apartments. They also are suitable for small storage warehouses for non-perishables. Like all surplus buildings deeded to public agencies for generation of non-aviation revenues, uses will depend upon the airport, its location, the character of the community and the imagination the airport manager uses in devising ways of merchandising.

Parking for Customers

QUESTION: In the course of a trip West I visited a large municipal air terminal and found that the city had set up a parking lot near the terminal where it cost a fee to park an automobile. There was space available for free parking but it was not so convenient to the terminal. I talked to the manager and he said he had had some complaints from employes in the terminal building because they had to walk farther after parking their cars. What about this?

ANSWER: We are not in a position to tell you the general feeling of the public and personnel regarding such an arrangement because it has been done only at a few airports. It seems only to be applicable to heavily-used terminals where there are a large number of visitors, passengers and employes. Looking at it purely from the standpoint of convenience to the public, it seems to us that Mr. Passenger or his wife would not be afforded less service by the establishment of a paid parking area. If the situation followed that at most busy terminals, poor Mr. Passenger has to park in the less convenient areas because the close-up areas are filled all day with employes' cars. Some managers have tried to keep close-in parking places open for the traveler by restricting parking by signs and time limits but this is difficult without policing by attendants.

There is of course, the thought that the sightseer and the general public should not be charged since we all feel that they are valuable to an airport in the efforts to promote good will. However, most airports can provide good spots for such parking adjacent to open areas. We are curious, too, as to the effect of paid parking areas on customers of restaurants on airports, or for that matter other concessions drawing from the general public as well as those frequently using the airport. Time will tell us what public opinion thinks. ★ ★ ★

"Armor Coated"
FLOTTORP
PROPELLERS
have proved their merit

The improved Flottorp propeller that's "Smooth as glass but armor coated" has proved its resistance to abrasion and moisture. Many of these props have flown hundreds of hours and they look and are as good as when installed. In every case the new Flottorp propellers have proved their merits.

MORE EFFICIENCY LESS MAINTENANCE

Absence of abrasion and wear keeps a Flottorp prop at peak efficiency. Resistance to moisture keeps the balance perfect. The hard, glassy-smooth surface reduces maintenance cost to a minimum, and best of all . . .

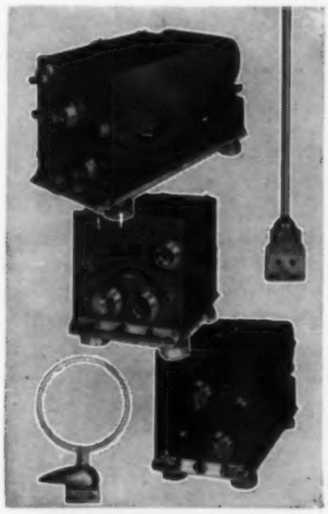
COSTS NO MORE THAN ORDINARY PROPS

The new armor coated Flottorp, including stainless steel leading edge, sells for the same price as ordinary varnish finish blades. You save by getting more efficiency from Flottorp, longer useful life, and least maintenance costs.

WRITE FOR FREE FOLDER AND PRICE LIST

FLOTTORP
Manufacturing Company
GRAND RAPIDS, MICHIGAN
World's oldest manufacturers of AIRCRAFT PROPELLERS

VHF COMMUNICATION and LF NAVIGATION SYSTEMS
meet every Operational Need



THE A.R.C. TYPE 11A

Meets basic needs by providing for VHF Transmission, LF Range Reception and Rotatable Loop Navigation.

THE A.R.C. TYPE 17

A 2-way VHF equipment, including a tunable VHF Receiver and a 5-channel, crystal controlled VHF Transmitter.

THE A.R.C. TYPE 12 (Above)

Combines the advantages of the Type 11A and the Type 17, offering 2-way VHF, together with LF Range Reception and Rotatable Loop Navigation.

All units of these systems have been Type-Certificated by the CAA. For the highest standards of design and manufacture and the finest in radio equipment, specify A.R.C.

ARC Aircraft Radio Corporation
BOONTON, NEW JERSEY
DEPENDABLE ELECTRONIC EQUIPMENT SINCE 1928

JUST AMONG OURSELVES

(Continued from page 8)

with that encouraging fact, the calamity howlers of the present era notwithstanding.

This anniversary issue contains quite a bit of documentary proof that this is so. The same bold thinking that launched this industry is still at work, especially within the ranks of our engineering genius. We need more of the same stuff among our industry and public officials, up in the higher echelons of industry and government leadership. We need, most of all, to get out of the mental straight-jacket we've acquired from too much government in aviation. We can not accept the proposition that opportunities in aviation are on the wane when there's so much evidence, as contained in these pages, that we've barely scratched the surface insofar as progress and growth is concerned. The lack of a broad aviation policy bemoaned by President Roosevelt fifteen years ago this month is still with us. There has been practically no progress in that department. We've come a long way without it. But we still must seek it.

The indisputable facts of the case are that more people are flying more hours in more and better airplanes than ever before in history, and just as important, more aircraft are being adapted to more scientific uses for the betterment of humanity and improvement of our civilization as the days go by. While we can not shut our eyes to the importance of the flying machine as a weapon of war and the necessity for developing it as such together with all of the elements necessary for its proper use for survival of our nation, perhaps the true progress of aviation can best be summed up by recounting a little publicized operation in far away Greece where civil war continues to eat away at that tragic country's vitals. One day, up in the mountains of northern Greece at a guerilla outpost, the sentry heard an approaching airplane. The anti-aircraft battery was alerted. But as the craft came into sight the post commander gave the order not to shoot —it was the plane that kills the mosquitoes. Every day the little ship passes over with its load of DDT to spray malarial infested swamps—the only case on record where the opposing sides have cooperated since the war began. It's only recently that the airplane has been engaged to spearhead the worldwide fight against this dread disease that kills 3 million people annually and infects an additional 300 million every twelve months. It doesn't require much imagination to figure out who'll win that fight, the airplane, or the mosquito.

We think the story symbolizes the ultimate destiny of the airplane. With such unlimited horizons ahead it shouldn't be too difficult to break the shackles that ham-string the industry and accelerate, under competitive free enterprise, aeronautical advancement and development during the next fifteen years at a far more rapid and productive rate. ★ ★ ★

TIME TO MATURE

(Continued from page 19)

This applies equally to the girls. Aviation, just like any other activity, will not be fully successful unless it is shared by the girls and 30 years from today the wealthy women who have become accustomed to airplanes will not only have a nice car, but an airplane which they will probably fly themselves.

There is nothing that can stop this development. In due time we are bound to have a tremendous number of elderly pilots flying their own planes. ★ ★ ★

Operators: This Means Money to You. Sell selected gift merchandise over your counter and put money in your till. All items nationally advertised. No item over $4.50. Money back guarantee. Generous discounts. Write for Flyer today and get in on active selling season. No minimum order. "The Flying Saucer," Dept. F-6, Gridley Airport, Ypsilanti, Michigan.

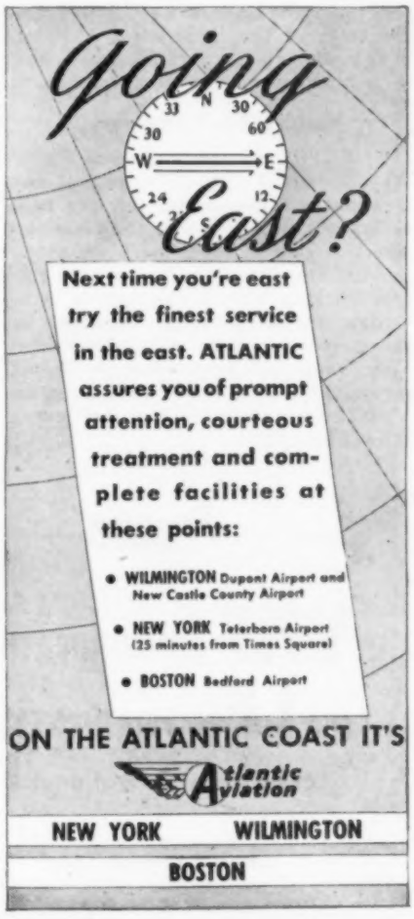
FLEXIBLE STEEL CABLE

One-eighth-inch diameter. 7x19 construction. **Extra Flexible.** Galvanized steel. Preformed. New condition on original Roebling factory reels of 5,500 feet. Today's market price 8½c per foot net. My price only 5c per foot in full reels. 100 or more feet 5½c per foot. Less than 100 feet 6½c per foot.

D-4 COMPUTERS

These new computers are individually wrapped, convenient to carry, simple to use. 4½" diameter. Computes problems of time, speed, distance, true airspeed, true altitude. Slide rule will multiply, divide, give ratios, etc., etc. List price $2.00. Ort's price 25c each. $2.00 per dozen. $10.00 per hundred. postpaid.

KARL ORT
YORK, PA.


Going
East?
Next time you're east try the finest service in the east. ATLANTIC assures you of prompt attention, courteous treatment and complete facilities at these points:
• WILMINGTON Dupont Airport and New Castle County Airport
• NEW YORK Teterboro Airport (25 minutes from Times Square)
• BOSTON Bedford Airport
ON THE ATLANTIC COAST IT'S
Atlantic Aviation
NEW YORK
WILMINGTON
BOSTON

Smyer Aircraft Sales & Service

If it's for a Cub-Continental or Lycoming, We have it

— — COMPLETE NEW STOCK — —

—SPECIAL THIS MONTH—

New head phone and extension @ $4.95 each.

Ponca City Municipal Airport
Downtown Airpark, Oke City

OKLAHOMA DISTRIBUTOR FOR PIPER AIRCRAFT

Aircraft Investment Corporation

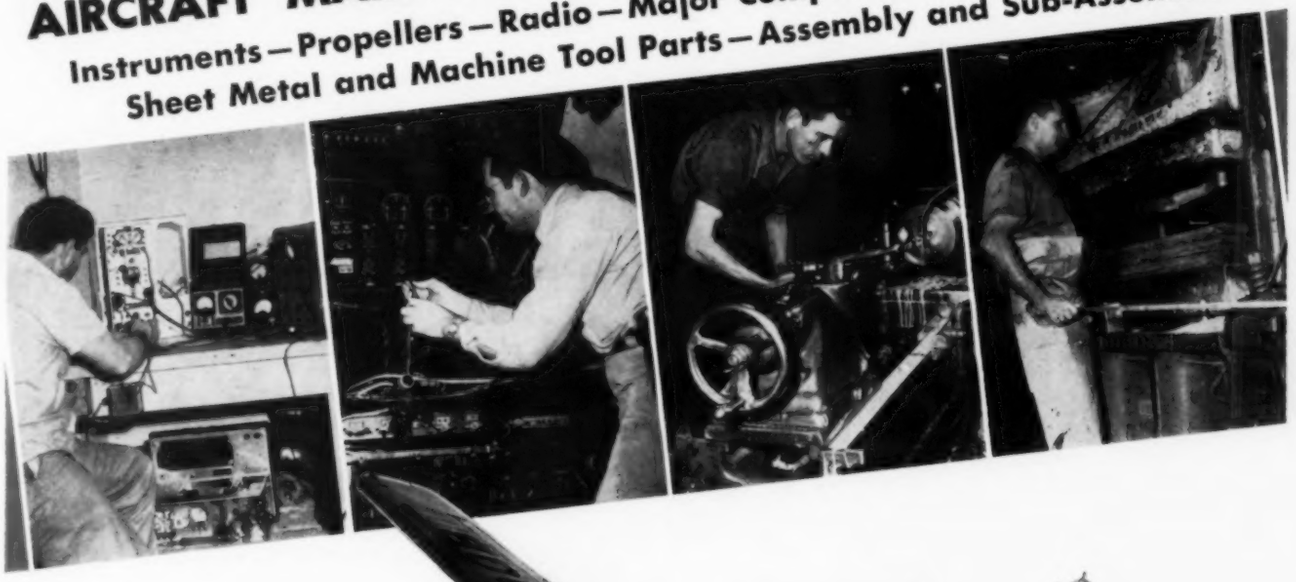
Specializing in
Aircraft Finance
and
Aviation Insurance

Meacham Field — Fort Worth, Texas

TEMCO

AIRCRAFT MAINTENANCE—CONVERSION—OVERHAUL

Instruments—Propellers—Radio—Major Components
Sheet Metal and Machine Tool Parts—Assembly and Sub-Assemblies



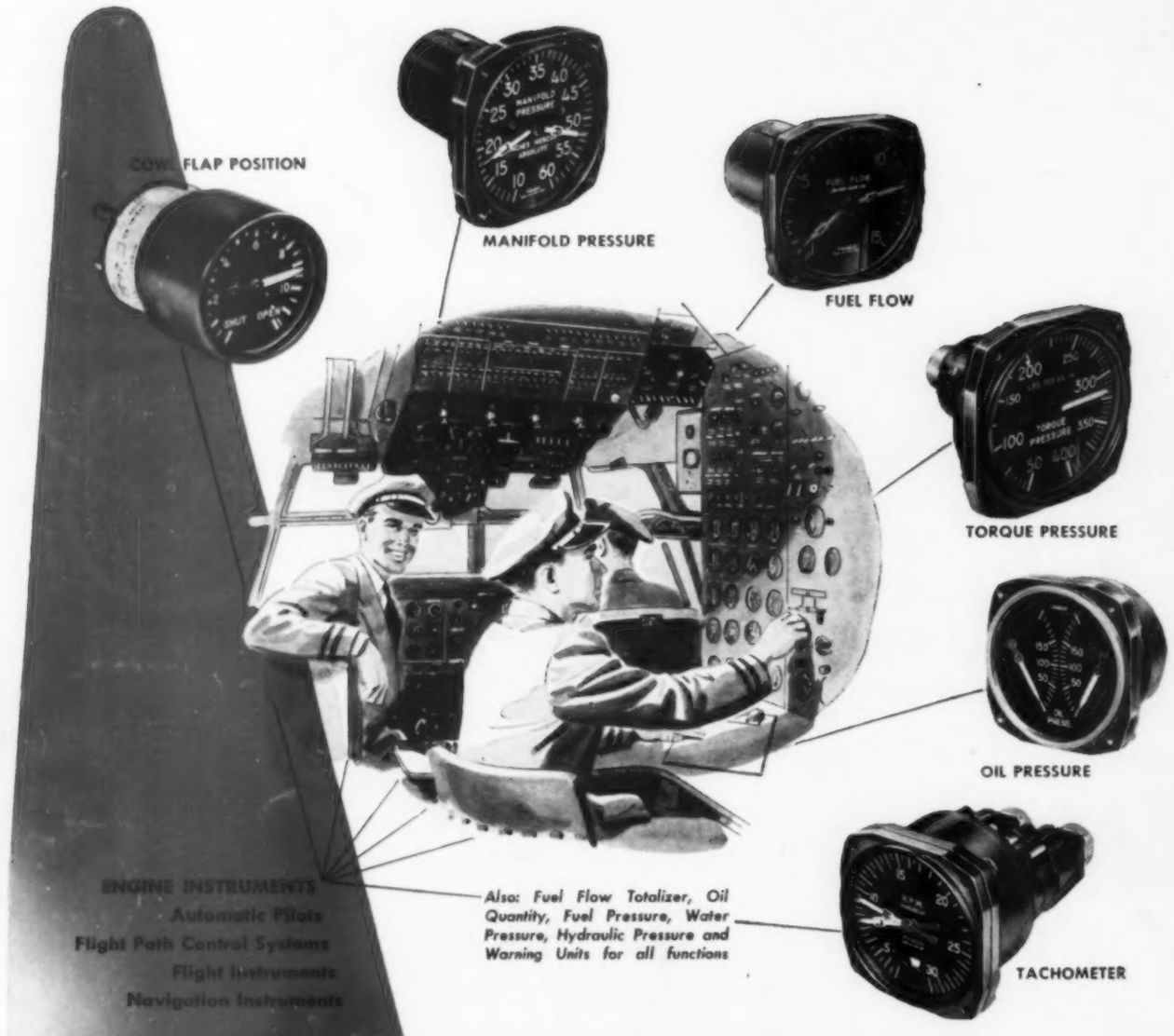
TEMCO
Military Type
Trainer

TEMCO'S modern aircraft plant near Dallas, Texas, has more than 1,000,000 square feet of floor space. The largest aircraft are handled quickly and easily.

Write for brochure giving complete details on TEMCO facilities and equipment. No obligation.

Texas Engineering & Manufacturing Co., Inc.

P. O. Box 6191 **Dallas 2, Texas**



ENGINE INSTRUMENTS
Automatic Pilots
Flight Path Control Systems
Flight Instruments
Navigation Instruments

★

Power Supply Generating Equipment
Engine Control Equipment
Engine Starting Equipment
Air Pumps
Hydraulic Equipment
Ice Elimination Equipment
Power Supply Regulating Equipment

Also: Fuel Flow Totalizer, Oil Quantity, Fuel Pressure, Water Pressure, Hydraulic Pressure and Warning Units for all functions

ONE Source, ***ONE*** High Quality, for Virtually Every Instrument in Your Flight Engineer's "Office"

The nerve center in the huge and complex aircraft of today is the Flight Engineer's instrument panel. To assure you the utmost in uniformity and accuracy in this vital spot, Eclipse-Pioneer provides precision remote indicating systems for practically every engine function required. Each instrument is an example of the skill and craftsmanship that have built Eclipse-Pioneer's reputation—one of the oldest and finest in the field. When you specify these all-important engine instruments for your planes, give yourself every advantage by selecting Eclipse-Pioneer—one source, one high quality for all.

ECLIPSE-PIONEER DIVISION OF

TETERBORO, NEW JERSEY

Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, New York

Bendix
AVIATION CORPORATION

LOOK FOR THE PIONEER MARK OF QUALITY

REG. U.S. PAT. OFF.